

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
Nora Mead Brownell, Joseph T. Kelliher,
and Suedeem G. Kelly.

Virginia Electric Power Company
d/b/a Dominion Virginia Power/
Dominion North Carolina Power

Project No. 2009-030

ORDER APPROVING OFFER OF SETTLEMENT, AMENDING LICENSE, AND
DENYING REHEARING

(Issued March 4, 2005)

1. Virginia Electric Power, doing business as Dominion Virginia Power/Dominion North Carolina Power (Dominion) has filed an offer of settlement resolving issues relating to the license issued by the Commission to Dominion, authorizing the continuing operation of Dominion's Roanoke Rapids and Gaston Hydroelectric Project No. 2009. This order approves the offer of settlement and amends the project license accordingly. The order also denies a separate request for rehearing filed by the North Carolina Department of Environment and Natural Resources (North Carolina DENR). This order is in the public interest because it resolves remaining issues regarding the project license, in a manner consistent with the public interest and with the intent of the parties to the licensing proceeding.

Background

2. The 329-megawatt Roanoke Rapids and Gaston Project is located on the Roanoke River, on the Virginia-North Carolina border, in Brunswick and Mecklenburg Counties, Virginia, and in Halifax, Northhampton, and Warren Counties, North Carolina. The original license for the project was issued in 1951.¹

3. On January 28, 1999, Dominion filed an application for a new license for the project. On July 15, 2003, following several years of negotiations, Dominion filed a comprehensive agreement, including proposed license articles, signed by it and 13 other entities.

¹ 10 F.P.C. 1.

4. On March 31, 2004, Commission staff issued an order approving the settlement agreement and issuing a new license for the project.² The order explained that certain of the proposed license articles had been modified, to allow the Commission to fulfill its statutory responsibilities.³ The order also found that North Carolina had waived its authority to issue water quality certification under section 401 of the Clean Water Act,⁴ because it had not acted on Dominion's certification application within one year of its receipt.⁵

5. Dominion, the Department of the Interior's U.S. Fish and Wildlife Service, the Department of Commerce's National Marine Fisheries Service, North Carolina DENR, and North Carolina Wildlife Resources Commission filed separate requests for rehearing. These parties argued in essence that certain of the revisions made in the licensing order to the proposed license articles were inconsistent with the settlement. North Carolina DENR also disputed the finding that it had waived Clean Water Act certification.

6. On June 16 and 17, 2004, the Commission convened a technical conference, to discuss revisions that the parties had proposed to the license articles set forth in the March 31 order.

7. On January 28, 2005, Dominion filed an offer of settlement, with the concurrence of the parties to the original settlement, based on the results of the technical conference. Dominion asks the Commission approve the revised license articles that are contained in Appendix A to the offer of settlement, and to substitute them for Articles 401-426 in the March 31 Order. Dominion also asks the Commission to attach as appendices to the license the general provisions and technical settlement (both of which are part of the original settlement agreement). Dominion states that, should the Commission approve

² See 106 FERC ¶ 62,245.

³ See *id.* at PP 41-46.

⁴ 33 U.S.C. § 1341.

⁵ See 106 FERC at 64,491-92. Section 401(a)(1) of the Clean Water Act states that “[i]f the State . . . fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request, the certification requirements of this subsection shall be waived . . .” North Carolina Division of Water Quality, the state certification agency, issued what purported to be a draft certification on January 18, 2003, and a final certification on July 30, 2003. The licensing order noted that the terms of the certification were consistent with the settlement.

the offer of settlement, the parties will withdraw all pending requests for rehearing, with the exception of the North Carolina DENR's arguments regarding water quality certification.

8. On February 2, 2005, North Carolina DENR filed what it termed an offer of settlement, which it states is intended to resolve water quality certification issues.

Discussion

A. Dominion's Offer of Settlement

9. The revised license articles included in the offer of settlement are the result of discussions at the technical conference between the parties and Commission staff, and are supported by all of the parties. We are gratified by the efforts of our staff and of the parties to resolve the matters raised on rehearing. The proposed new license articles do not result in any substantive changes to license requirements, but rather provide some clarity as to the manner in which those requirements will be implemented. We therefore will approve the offer of settlement, and, as Dominion requests, replace license articles 401-426 with articles 401-428 from the offer. We will also append to the license, for clarity, the general provisions and technical settlement of the comprehensive settlement.

10. We note with approval new license article 428, which states, in part, that "[n]otwithstanding the limitations on expenditures included in this license, the Commission reserves the right to require the licensee to undertake such measures as may be appropriate and reasonable to implement approved plans." Settlements filed with us often include specific dollar limitations (*i.e.*, the licensee shall build a fishing pier, at a cost of up to \$15,000), and we sometimes include those limitations in license articles at the parties' request, in an effort to revise proposed articles as little as possible. It is important for all entities involved in settlements to know, however, that we consider the licensee's obligation to be to complete the measures required by license articles, in the absence of authorization from the Commission to the contrary. Dollar figures agreed to by the parties are not absolute limitations.

11. We also note with approval the fact that the many measures required by the settlement and the corresponding license articles appear to call for activities related to project impacts and purposes. It is our strong preference that measures required in a license be clearly tied to the project at issue. We are sometimes troubled by settlements which require measures, such as general funds to be used for unspecified measures, that are not tied to either project impacts or purposes. In addition, we prefer measures requiring specific actions (*i.e.*, the licensee shall construct a fish hatchery) to those

mandating general actions whose effects are unclear (*i.e.*, the licensee shall contribute \$100,000 to support fisheries enhancements). It is much easier for us to conclude that a project proposal based on specific measures is in the public interest, as opposed to one made up in large part of measures whose impacts we cannot truly assess. We also note that we have a preference for mitigation measures that are located in the vicinity of the project unless this is impractical or unless substantially increased overall project benefits can be realized from adopting off-site measures.

12. As an additional matter, it appears that much of the confusion over the intent and appropriate manner for implementing the proposed license articles contained in the original settlement arose from the fact that some of the license articles proposed in the settlement were very lengthy and complex, and some covered a number of matters (for example, drought management and minimum flows in the same article) that are typically addressed in separate articles. While the parties to settlement discussions may develop over time a project-specific understanding of complex matters, it is important in reducing their agreements to writing to pay significant attention to developing license articles that are clearly comprehensible to those who have not been steeped in the minutia of the negotiations. It is also helpful for parties to try to separate individual issues into “bite-sized” pieces, so as to improve the ease of understanding and enforcing proposed articles. This, it is best to have separate articles dealing with matters such as flows, drought management, ramping rates, project operations, and monitoring.

13. Finally, we are pleased that the settling parties were able to develop means for carrying out the goals of the settlement in a manner consistent with the Commission’s responsibilities under the Federal Power Act. For example, Article 411, which calls for a bypassed reach flow release plan, requires the licensee to develop the plan in consultation with state and federal resource agencies, and then to file the plan for Commission approval, with the explicit understanding that the Commission may require changes in the plan. We receive many settlements in which parties agree to adaptive management measures, calling for future studies and possible changes in project operations based on experience. For the Commission to exercise its oversight authority, it is necessary that license conditions embodying these measures provide for Commission review and, where required, modification of proposed actions that go beyond the limits imposed by the license.⁶

⁶ For example, if a license permits the licensee to release minimum flows of between 100 and 200 cubic feet per second (cfs), Commission approval would not be needed should the parties agree to releases of 150 cfs. Proposed releases of 75 cfs or 300 cfs, however, would require our authorization.

B. Water Quality Certification

14. In its request for rehearing, North Carolina DENR disputes the conclusion in the March 31 Order that it waived water quality certification by not acting within one year on Dominion's September 27, 2001, certification application.

15. North Carolina DENR asserts that Dominion filed a request for water quality certification on January 28, 1999, and withdrew the request on March 3, 1999. Dominion then filed a second certification request on September 27, 2001. North Carolina DENR states that North Carolina Division of Water Quality (North Carolina DWQ), the state certification agency, wrote to the licensee on November 6, 2001, stating that the application was not complete, would not be processed, and would be considered withdrawn if the state did not hear from the licensee within three weeks.

16. According to North Carolina DENR, the licensee responded on March 8, 2002, asking North Carolina DWQ to hold the application on file while it gathered further information. North Carolina DENR states that North Carolina DWQ noted in its response of April 15, 2002 that the licensee did not dispute that the application was withdrawn and that therefore a new application fee was required.

17. North Carolina DENR states that the licensee filed a new application on June 6, 2002, and that North Carolina DWQ, by letter dated August 22, 2002, explained that the application would not be considered complete until settlement negotiations were complete. North Carolina DENR avers that the licensee requested on November 14, 2002, that the state consider the application complete, and that North Carolina DWQ agreed to do so by letter dated November 22, 2002.⁷

18. North Carolina DENR then states that the licensee agreed on several occasions to waive the otherwise-applicable state law requiring that certification be issued within 60 days after the record was complete, to allow for the drafting and review of the

⁷ As North Carolina DENR recognizes, request for rehearing at 7, under our regulations, the one-year deadline for action on a certification request begins when the application for certification is filed, not when the state considers it complete. *See Public Service Company of New Hampshire*, 75 FERC ¶ 61,111 (1996). Thus, the significance of the state's agreement that the application was complete is not that it began the one-year period, but rather, as discussed below, that it demonstrates that the application was neither rejected nor withdrawn.

certification and coordination with settlement efforts.⁸ North Carolina DENR explains that the state sent the licensee a draft certification in January 2003, and issued certification on July 30, 2003.

19. North Carolina DENR argues that the September 27, 2001, certification application was effectively withdrawn by the licensee, as evidenced by its failure to dispute North Carolina DWQ's statements that the application had been withdrawn, and by the licensee's submission of another application in June 2002. The state further contends that, by agreeing to the extensions of the deadline for the state to issue certification, the licensee effectively withdrew and refiled its application through each agreement.

20. We agree with North Carolina DENR that the state's actions with respect to the September 27, 2001, certification application did not result in waiver. North Carolina DWQ told the licensee that it would consider the application withdrawn if the licensee did not respond within three weeks, which the licensee apparently did not. Moreover, the licensee did not object to being required to file, and pay for, another application, showing that it agreed that the application had been withdrawn. We conclude that North Carolina DWQ's statement that it would consider the application withdrawn and the licensee's failure to respond to that statement constituted rejection of the application. Thus, there was no waiver in that instance.

21. We cannot agree with North Carolina DENR's conclusions with respect to the June 6, 2002, application, however. While the state and the licensee agreed to various extensions under state law before the state acted on the application, the state did not reject or deny the application, nor did the licensee withdraw it. When North Carolina DWQ acted on the application, at the end of July 2003, the one-year deadline established by the Clean Water Act had passed. Therefore, North Carolina DWQ waived certification with respect to the Roanoke Rapids and Gaston Project.⁹

⁸ See North Carolina DENR request for rehearing at 4-5.

⁹ North Carolina DENR points out that the agreements by the licensee to extend the state's period for acting on the application had the same effect as if the licensee had repeatedly filed and withdrawn its application. While the effect might have been the same, this does not convert actions taken to ensure compliance with state law into an extension of the deadline established by the Clean Water Act. We also note that we look with disfavor upon the repeated withdrawal and refiling of certification applications, which has in many cases resulted in extensive delays in the completion of licensing proceedings.

22. North Carolina DENR states that, even if the Commission is not required to include the certification in the license, it should nonetheless accept the certification as a matter of its discretion. We initially accepted, with some modifications, the settlement, to which North Carolina DENR was a party and which North Carolina DENR asserts was consistent with the certification. In this order, we are accepting the offer of settlement, which is supported by all of the settling parties, including North Carolina DENR. We therefore conclude that we have granted North Carolina DENR the alternative relief it requests, by issuing the license on terms that it supports.¹⁰

The Commission orders:

(A) The offer of settlement, filed on January 28, 2005, by Virginia Electric Power, doing business as Dominion Virginia Power/Dominion North Carolina Power, is approved.

(B) The license for the Roanoke Rapids and Gaston Hydroelectric Project No. 2009 is amended by replacing license Articles 401-426 with Articles 401-428 set forth in Appendix A to this order, and by attaching the appendices included in this order.

¹⁰ On February 2, 2005, North Carolina DENR filed what it termed an offer of settlement regarding the water quality certification issue, as a supplement to the offer of settlement filed by Dominion. The offer of settlement essentially amounts to additional argument on the merits, which we reject as an untimely supplement to the state's request for rehearing. In any event, the argument made in that document, that it is inconsistent of us to issue tolling orders (given the 30-day deadline in the Federal Power Act for acting on requests for rehearing) yet to consider the state to have waived certification under the facts here, is not only a *pos hoc* rationalization, but is unavailing. The state took action to avoid deadlines imposed by state law, but did not purport, even if such an action would be permissible, to toll the Clean Water Act deadline. As the state concedes, the courts have approved our use of tolling orders. *See Kokajko v. FERC*, 837 F.2d 524 (1st Cir. 1988). We are aware of no authority that permits a state to extend deadlines established by the Clean Water Act. North Carolina DENR's offer of settlement also contains a proposed amended certification. Since, as discussed above, the state has waived certification, it cannot amend its prior untimely certification.

(C) The request for rehearing, filed by North Carolina Department of Environment and Natural Resources on April 29, 2004, is denied with respect to issues regarding water quality certification.

By the Commission.

(S E A L)

Linda Mitry,
Deputy Secretary.

APPENDIX A – License Articles

Article 302. Final Contract Plans and Specifications for Flow Release Structure.

At least 60 days before starting construction, the licensee shall submit one copy to the Division of Dam Safety and Inspections – Atlanta Regional Engineer – and two copies to the Commission (one of these shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of final contract plans and specifications along with an accompanying supporting design report. The supporting design report should cover all pertinent features, such as gates or siphons, and be consistent with the Commission's Engineering Guidelines. The Commission may require changes to the plans and specifications to assure the work is completed in a safe and environmentally sound manner. If the licensee plans substantial changes to the location, size, type, or purpose of project features, the plans and specifications must be accompanied by revised Exhibit F and G drawings, as necessary. Construction may not commence until authorized by the Regional Engineer.

Article 401. Diadromous Fish Restoration.

(1) Requirement to File Plans and Design Drawings for Commission Approval.

The fishway prescription in Appendix A to this order incorporates Article FS₂ of the Settlement Agreement, filed on July 15, 2003. That article requires the licensee to (a) conduct studies, (b) prepare monitoring plans, and (c) design fish passage facilities, developed cooperatively pursuant to the procedures outlined in Article 427, with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the North Carolina Wildlife Resources Commission, the North Carolina Department of Environment and Natural Resources – Division of Marine Fisheries, and the Virginia Department of Game and Inland Fisheries [together with the licensee, jointly referred to as the Diadromous Fish Restoration Technical Advisory Committee (Fish Restoration Committee)]. Each such plan or fish passage facility identified below, with a reference to a source of its requirement, shall also be submitted to the Commission for approval and must be approved by the Commission before being implemented or constructed by the licensee. Within 180 days of license issuance, the licensee, after consultation with the other members of the Fish Restoration Committee, shall file, with the Commission, a schedule for submittal of each of the monitoring plans and facility design plans for Commission approval. The schedule may include decision points for action as well as specific calendar dates for development and implementation of plans and facilities. The Commission reserves the right to make changes to the plans.

Settlement Agreement	
Article & Section No.	Description of Plan or Facility
FS ₂ , 3.1 – 3.3, 3.5, 3.7	American Eel Distribution studies
FS ₂ , 3.4 & 3.6	Upstream American Eel Facility Designs
FS ₂ , 3.4 & 3.7	Upstream Eel Passage Effectiveness
FS ₂ , 3.8	Downstream American Eel Passage Evaluation
FS ₂ , 3.9 & 3.10	Downstream Eel Passage Facility Designs
FS ₂ , 4.1.1.6 & 4.1.2.1	Initial Trap & Transport Facility Plan
FS ₂ , 4.1.1.7 & 4.1.2.2	Downstream Passage & Turbine Mortality Study Plan for Post-Spawned Adults & Out-Migrating Juvenile American Shad
FS ₂ , 4.1.2.1 & 4.1.3	Adult American Shad Telemetry Studies
FS ₂ , 4.1.4, 4.2.3, & 4.3	Trap/Sort/Transport Facility at Roanoke Rapids dam (including designs, construction, engineering testing, schedule for operation, and effectiveness testing)
FS ₂ , 4.3.12 & 4.3.13	Downstream Passage Measures for Juvenile and Post-Spawned Adult American Shad

As to each fish passage facility to be constructed or installed, the licensee shall include detailed design drawings of the licensee's proposed fish passage facilities, showing the specifications of the facilities (including the flows needed to operate the facilities), together with a plan and schedule to construct, install, operate, and maintain the facility, at least 90 days before the start of any land clearing or land-disturbing activities for fish passage facilities at the project site. As to each study and monitoring plan, the licensee shall identify the methodology employed, as well as a schedule for: (a) implementing the monitoring provisions; (b) consultation with the members of the Fish Restoration Committee concerning the results of the monitoring; and (c) filing the results, agency comments, and licensee's response to agency comments with the Commission.

With respect to each plan, the licensee shall submit to the Commission documentation of its consultation, as set forth in Article 427. The Commission reserves the right to make changes to any proposed facility and schedule, and any plan submitted. Upon Commission approval, the facility or plan becomes a requirement of the license, and the licensee shall implement the plan or changes to project operations or facilities, including any changes required by the Commission.

If the results of any monitoring study required as part of this article indicate that changes in project operations or facilities are necessary to facilitate fish passage (including any measures identified by the licensee or the members of the Fish Restoration Committee that result from consultation required by this article), the Commission may direct the licensee to make such reasonable changes in the design of the facilities or operations, as necessary.

Short-term changes to any study or monitoring plan required by this article and undertaken in response to events that may alter flow releases, affect monitoring effectiveness, or affect diadromous fish may be made after consultation with the Fish Restoration Committee, as set forth in Article 427. Any such changes will be reported to the Commission within 30 days of being determined necessary.

(2) Requirement to File Documentation of Completion.

The licensee shall file, with the Commission, documentation of completion, including as-built drawings filed pursuant to Article 301, of the following facilities or activities, at a minimum: (a) upstream American eel passage facilities at Roanoke Rapids and Gaston dams; (b) downstream American eel passage facilities at Roanoke Rapids and Gaston dams; (c) initial trap and transport measures; (d) Phase 2 trap/sort/transport fish passage facility; and (e) downstream fish passage facilities for American shad.

(3) Other Requirements.

Certain conditions in the Section 18 Fishway Prescription, which is attached as Appendix A to this order, incorporate provisions of the settlement agreement filed July 15, 2003, and contemplate long-term changes to project operations or facilities for the purpose of enhancing fish passage in the Roanoke River. The changes may not be implemented without prior Commission approval after formal exercise of the authority reserved in Article 417 of this license. The conditions are listed below.

Settlement Agreement	
Article & Section No.	Description of Plan or Facility
FS ₂ , 4.4	Phase 3 Volitional Fish Passage Facility
FS ₂ , 9.0	Discontinuing the Licensee's Fish Passage Obligation

Article 402. Dissolved Oxygen Standards. Within 30 days of the issuance date of this license, the licensee shall operate the project such that water discharged through the Roanoke Rapids hydropower turbines meets, or exceeds, instantaneous and mean dissolved oxygen (DO) concentrations of 4.0 milligrams per liter (mg/l) and 5.0 mg/l, respectively. The daily mean DO concentration shall be calculated as the mean of 24 hourly instantaneous values. If DO concentrations immediately upstream of the project do not meet or exceed an instantaneous value of 4.0 mg/l or a daily mean of 5.0 mg/l, the licensee shall notify the North Carolina Division of Water Quality (NC Water Quality) and the water discharged through the Roanoke Rapids hydropower turbines shall equal or exceed the upstream DO concentration.

In the event of temporary emergency conditions that negatively affect compliance with the above DO requirements, the licensee shall cooperate in good faith with the NC Water Quality and the North Carolina Wildlife Resources Commission to take reasonable steps to protect the water quality of the Roanoke River downstream from the Roanoke Rapids dam.

Article 403. Roanoke Rapids DO Monitoring Plan. Within 180 days of the issuance date of this license, the licensee shall file with the Commission, for approval, a plan to monitor dissolved oxygen (DO).

The plan shall include, at a minimum:

- (1) a provision to measure DO concentrations at the project to ensure that the DO standards, as specified in Article 402, are being maintained; in the Roanoke Rapids tailrace;
- (2) DO sampling locations in the Lake Gaston tailwaters and upstream of the Lake Gaston dam, after consultation with the North Carolina Division of Water Quality (NC Water Quality);
- (3) a provision to notify NC Water Quality's Raleigh Regional Office if DO concentrations immediately upstream of the project do not meet or exceed an

- instantaneous or daily mean value of 4.0 milligrams per liter (mg/l) or 5.0 mg/l, respectively;
- (4) a provision to sample DO levels in Lake Gaston and in the tailwaters of Lake Gaston within two business days of non-compliance with the DO standard specified in Article 402 for the Roanoke Rapids tailwaters;
 - (5) a provision to maintain the DO data on a real-time basis via the internet and to forward the data to NC Water Quality's Wetland/401 Unit, the Ecosystems Unit and the Raleigh and Washington Regional Offices every other month from November 1 through May 31 and monthly from June 1 through October 31. The data shall be filed with the Commission at the same time. The licensee shall submit the data electronically and shall notify NC Water Quality in writing when the data have been transmitted. The licensee may submit accompanying printed copies, in addition to the electronic submittals. Data collected by the licensee shall include (a) stage or flow, as measured in cfs, (b) site, (c) date, (d) time, (e) depth, (f) DO concentrations, measured in mg/l, and (f) water temperature, measured in degrees Celsius (°C); and
 - (6) an implementation schedule.

The licensee shall prepare the plan after consultation with NC Water Quality. The licensee shall include with the plan documentation of agency consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to NC Water Quality, and specific descriptions of how NC Water Quality's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for NC Water Quality to comment and to make recommendations before filing the plan with the Commission. In reporting the results of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The Commission reserves the right to require changes to the plan. No ground-disturbing or land-clearing activities for installation of any monitoring devices shall begin until the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

If the results of the monitoring indicate that operational changes are necessary to protect water quality, the Commission may direct the licensee to modify project operations. Any long-term changes to project operations or facilities identified by the

monitoring results to mitigate environmental impacts may not be implemented without prior Commission approval.

In the event of temporary emergency water quality conditions arising from implementing specific provisions of the plan required by this article, the licensee shall cooperate with NC Water Quality to take such reasonable steps to protect the water quality of the Roanoke River downstream from the Roanoke Rapids dam.

Article 404. Downstream Water Quality Monitoring Plan. Within one year of the issuance date of this license, the licensee shall file with the Commission, for approval, a plan to monitor dissolved oxygen (DO) and water temperature at the existing U.S. Geological Survey (USGS) gauges located at Halifax, Oak City, and Jamesville, North Carolina, downstream from the project.

The plan shall include, at a minimum:

- (1) a provision to fund three of the existing USGS continuous water quality monitoring stations for DO and water temperature at Halifax, Oak City, and Jamesville, North Carolina. The funding shall be provided annually to the North Carolina Department of Environment and Natural Resources (NC Environment and Natural Resources) and shall be provided retroactively to the submission of the monitoring plan;
- (2) a provision to maintain the DO data on a real-time basis via the internet and to forward the data to North Carolina Division of Water Quality (NC Water Quality) Wetland/401 Unit, Ecosystems Unit and Raleigh and Washington Regional Offices every other month from November 1 through May 31, and monthly from June 1 through October 31. The data shall be filed with the Commission at the same time. The licensee shall submit the data electronically and shall notify NC Water Quality in writing when the data have been transmitted. The licensee may submit accompanying printed copies in addition to the electronic submittals. Data collected by the licensee shall include (a) stage or flow, as measured in cfs, (b) site, (c) date, (d) time, (e) depth, (f) DO concentrations, measured in mg/l, and (f) water temperature, measured in degrees Celsius (°C);
- (3) the methods for evaluating the data collected, based on a 5-year study cycle or some other schedule as mutually agreed to by the licensee, NC Water Quality and the North Carolina Wildlife Resources Commission (NC Wildlife Resources);

- (4) in consultation with NC Water Quality and NC Wildlife Resources, a stepwise process for developing any operational changes and procedures that could be implemented, if, during the evaluation of water quality data described in this article, the NC Water Quality and NC Wildlife Resources find that scientific data establish a causal link between rescheduling, by the licensee, of the U.S. Army Corps of Engineers (Corps) weekly declaration and reduction of water quality in the main stem of the Roanoke River to below state standards such that by the end of the last study cycle if changes are made at the end of each such study cycle the licensee shall release one seventh of the Corps weekly declaration per day as defined in Settlement Agreement Article GP2; and
- (5) an implementation schedule.

The licensee shall prepare the plan after consultation with NC Water Quality and NC Wildlife Resources. The licensee shall include with the plan documentation of agency 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. In reporting the results of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The Commission reserves the right to require changes to the plan. No ground-disturbing or land-clearing activities for installation of any monitoring devices shall begin until the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Following plan approval, any long-term changes to project operations or facilities identified by the monitoring results to mitigate environmental impacts, and not previously approved by the Commission in the plan, may not be implemented without prior Commission approval. If the results indicate that the project is not affecting downstream water quality, the licensee – after consultation with NC Water Quality and NC Wildlife Resources – may request that the Commission terminate the requirement to fund the downstream gauges and monitoring requirements of this article. The Commission reserves the right to direct the licensee to modify project operations to protect water quality.

In the event of emergency water quality conditions, the licensee shall cooperate with NC Water Quality and NC Wildlife Resources to take such reasonable steps to protect the water quality of the Roanoke River downstream from the Roanoke Rapids dam.

Article 405. Flow Augmentation. Upon license issuance, the licensee, in consultation with the U.S. Army Corps of Engineers (Corps), the North Carolina Division of Water Quality (NC Water Quality) and the North Carolina Wildlife Resources Commission (NC Wildlife Resources), shall begin augmenting flows downstream from Lake Gaston if all four of the following conditions are met: (1) the Corps is operating the Kerr Reservoir under its drought management strategy; (2) Roanoke Rapids is not in a hydropower peaking mode and is only releasing drought minimum flows as directed by the Corps' drought management strategy or the licensee is maintaining drought minimum flows, in accordance with Article 409; (3) a weekly declaration from the Corps (as defined in Settlement Agreement Article GP2) is issued that is less than the total of drought minimum flow required at the Roanoke Rapids dam; and (4) Lake Gaston water surface elevation is above 197.0 feet above mean sea level (msl). Upon initiation of the use of Lake Gaston storage, the licensee shall notify the Commission and the president of the Lake Gaston Association, and post information on its "Lake Information" web page concerning the use of Lake Gaston storage.

When the water level in Lake Gaston reaches 197.0 feet msl, the licensee shall no longer be required to augment downstream flows in accordance with the preceding paragraph. At such time, the licensee shall release from the Roanoke Rapids dam, a flow equal to the flow entering the project from upstream, adjusted for consumptive withdrawals, evaporation, and inflows to Lake Gaston and Roanoke Rapids Lake. If all the drought storage in Lake Gaston (60,000 acre-feet between 200.0 feet and 197.0 feet msl) is used for downstream flow augmentation, the licensee may regulate Lake Gaston from 197.5 feet msl to 196.5 feet msl to meet system operational needs.

When the Corps weekly declaration begins to exceed the Roanoke Rapids dam drought minimum flows, the licensee shall not exceed drought minimum flows at the Roanoke Rapids dam or operate Roanoke Rapids in a load-following mode until the level in Lake Gaston reaches 199.5 feet msl.

Water levels and flows may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods for project maintenance purposes, upon mutual agreement between the licensee, NC Water Quality and NC Wildlife Resources. If the water levels or flows are so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 406. Lake Level Management. Within 30 days of the issuance of this license, the licensee shall implement the lake level management provisions of this article. The purpose of this article is to manage lake levels in Lake Gaston and Roanoke Rapids Lake to optimize the ecological, cultural, and recreational values of the lakes, while maintaining the licensee's operational flexibility.

The licensee shall operate the project so that during normal operation, Lake Gaston water level is maintained at 199.5 feet mean sea level (msl), \pm 0.5 foot (between 199.0 and 200.0 feet msl), and Roanoke Rapids Lake water level is maintained at 129.5 \pm 2.5 feet (between 127.0 and 132 feet msl). During the striped bass spawning season (March 1 through June 15), water may be stored in Lake Gaston between elevations 200.0 and 201.0 feet msl for weekend downstream flow augmentation.

Notwithstanding the water level limitations imposed above, the Lake Gaston water level shall be allowed to fall below elevation 199.0 feet msl, but no lower than elevation 198.0 feet msl, for up to 48 hours during any one seven-day period and up to 360 hours per calendar year. Roanoke Rapids Lake water level shall be allowed to fall below elevation 127 feet msl, but no lower than elevation 125.0 feet msl, for up to 48 hours during any one seven-day period and up to 360 hours per calendar year.

During April and May (bass spawning season), the licensee shall consult with the North Carolina Wildlife Resources Commission (NC Wildlife Resources) prior to reducing Lake Gaston water levels below 199 feet msl.

The lake water level requirements may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon mutual agreement between the North Carolina Division of Water Quality (NC Water Quality) and NC Wildlife Resources. Consultation with the U. S. Army Corps of Engineers (Corps) is required if the upper lake level limits are to be exceeded. If lake levels are so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident, and shall provide the reason for the change in lake levels.

Temporary modifications shall be allowed when flow release from the Kerr dam is insufficient to satisfy both the minimum flow and minimum lake level requirements, as described in Article 405 of this license. In case of drought conditions declared by the Corps, the requirements of this article shall be superseded by the requirements of Article 409 of this license.

During flood events, as determined by the Corps, no upper limit on lake levels shall apply. As set forth in Article 410, the licensee shall coordinate the operation of the

Roanoke Rapids and Gaston Project with the Corps' operation of the Kerr dam in the case of flood events. Unless otherwise directed by the Corps, the licensee shall not allow the lake levels to exceed 203.0 feet msl at Lake Gaston dam and 132.75 feet msl at the Roanoke Rapids dam.

The licensee shall notify designated representatives from the Lake Gaston Association and the Roanoke Rapids Lake Association, as applicable, when an unusual lake level event is expected to occur. In addition, the licensee shall make available, and update daily, on its website projected Lake Gaston water levels.

Article 407. Roanoke River Bypassed Reach Flows. Within 30 days of the issuance date of this license, the licensee shall discharge from the Roanoke Rapids Lake into the Roanoke River bypassed reach the following minimum and freshet flows in accordance with the schedule indicated. The purpose of these flows is to enhance, maintain, and protect fish and wildlife habitat and the biological integrity in the bypassed reach, enhance anadromous fish spawning success, and provide periodic freshet flows to mimic periodic non-flood high flow events.

For the purposes of this article, a freshet flow event is defined as a minimum of 24 consecutive hours and a maximum of 21 consecutive days where flows equal or exceed 500 cubic feet per second (cfs) in the bypassed reach. The licensee shall release these freshet flows according to a schedule provided by the North Carolina Division of Water Quality (NC Water Quality). The licensee is not required to abide by any modifications to the schedule unless provided at least 10 days notice prior to modification. Should no schedule be provided by November 30th of each year, the licensee shall develop a schedule for the release of the freshet flows for the next calendar year.

During the first five years of the license period (first study cycle), the licensee shall discharge a minimum flow of 325 cfs and 17 freshet flow events annually.

During the third through fifth year of the license period, the licensee shall provide, for a 30-day period between March 1 and June 15, a minimum flow of 500 cfs. The 30-day flow of 500 cfs shall count as two freshet flow events. Commencement of the 30-day anadromous fish spawning flow period shall be determined after consultation with the Cooperative Management Team (CMT), pursuant to Article 427, consisting of North Carolina Wildlife Resources Commission (NC Wildlife Resources), the North Carolina Department of Environment and Natural Resources (NC Environment and Natural Resources), the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NOAA Fisheries), and the Regional Partnership of Local Governments (Local Governments) in an ex officio capacity.

During the sixth through tenth year of the license period (second study cycle), the licensee shall discharge a minimum flow of 500 cfs for a 90-day period (anadromous fish spawning flow period) between March 1 and June 15, and a minimum flow of 325 cfs for the remainder of the year. Commencement of the 90-day anadromous fish spawning flow period shall be determined after consultation with the CMT, as set forth in Article 427.

During the second study cycle, the licensee shall provide 13 freshet flow events outside of the 90-day anadromous fish spawning flow period. With mutual agreement of the CMT, the licensee may: (1) reduce the 90-day period; (2) reduce the minimum flow to 300 cfs during the months of December, January and February; (3) shorten or extend the number of years with these flow requirements; and (4) determine whether additional study cycles are needed or establish, with Commission approval, a bypass flow regime for the remaining life of the license. If a drought occurs and the weekly declaration is less than 2500 cfs, the flow may be reduced to the weekly declaration minus 2000 cfs. Notwithstanding, the minimum flow in the bypass shall not be less than 325 cfs.

During the eleventh through fifteenth year of the license (third study cycle), if the licensee, in consultation with the members of the CMT, as set forth in Article 427, determines that a third study cycle is required, the licensee shall discharge a minimum flow of 325 cfs, and for a 90-day period between March 1 and June 15, a minimum flow of 750 cfs. Commencement of the 90-day anadromous fish spawning flow period shall be determined after consultation with the members of the CMT, pursuant to Article 427. The licensee shall provide 13 freshet flow events outside of the 90-day anadromous fish spawning flow period. If a drought occurs and the weekly declaration is less than 2750 cfs, the flow may be reduced to the weekly declaration minus 2000 cfs. Notwithstanding, the minimum flow in the bypass shall not be less than 325 cfs.

With mutual agreement of the members of the CMT, the licensee may: (1) reduce the 90-day period; (2) reduce the minimum flow to 300 cfs during the months of December, January and February; (3) shorten or extend the number of years with these flow requirements; and (4) determine if additional study cycles are needed or establish, with Commission approval, a bypass flow regime for the remaining life of the license.

From the sixteenth through twentieth year of the license (fourth study cycle), if the licensee, in consultation with the members of the CMT, as set forth in Article 427, determines that a fourth study cycle is required, the licensee shall discharge a minimum flow of 325 cfs, and for a 90-day period between March 1 and June 15, a minimum flow of 1,000 cfs. Commencement of the 90-day anadromous fish spawning flow period shall be determined after consultation with the members of the CMT, pursuant to Article 427. Licensee shall provide 13 freshet flow events outside of the 90-day anadromous fish spawning flow period. If a drought occurs and the weekly declaration is less than 3000

cfs, the flow may be reduced to the weekly declaration minus 2000 cfs. Notwithstanding, the minimum flow in the bypass shall not be less than 325 cfs.

If during any of the study cycles described above flood flows are in effect, the licensee in consultation with the CMT members may make adjustments to the plan to study the higher spawning flows out of the sequence described above per settlement agreement Article FL1 Section 4.8. The licensee shall notify the Commission within 30 days of any such adjustments to the plan.

If the licensee has constructed, and placed in operation, Phase II fish passage facilities, the 1,000 cfs flow during the anadromous fish spawning period shall be reduced to 900 cfs.

With mutual agreement of the members of the CMT, the licensee may: (1) reduce the 90-day period; (2) reduce the minimum flow to 300 cfs during the months of December, January and February; and (3) shorten or extend the number of years with these flow requirements.

After the last study cycle is completed, the licensee shall consult with the members of the CMT, as set forth in Article 427, to determine a final flow plan for the Roanoke Rapids bypassed reach, and file the plan with the Commission for approval. The final flow plan shall include (1) base and freshet flows within the parameters set earlier in this article (300 – 325 cfs base, 500 cfs freshet 13 to 17 times per year), and (2) a spawning season flow between 325 cfs and 1,000 cfs for up to 90 days between March 1 and June 15.

If the CMT is unable, after the second or third study cycle, to determine whether additional data are necessary, the spawning flows shall continue at the level of the just-completed study cycle until a determination is made by the CMT. If the fourth study cycle has been completed or the CMT has determined that no further study is necessary at the conclusion of any earlier cycle, the licensee shall provide spawning flows equal to the average of the flow in the last two study cycles until the final flow is determined.

Prior to the completion of the thirtieth year after license issuance, the licensee shall consult with the members of the CMT, as set forth in Article 427, regarding the need for fish spawning flows greater than 1,000 cfs. If it is determined that the need for testing higher flows exists, the licensee shall file, for Commission approval, a plan for studying spawning flows greater than 1,000 cfs beginning with the thirtieth year of the license.

Until implementation of the Commission approved flow release plan required by Article 411, bypassed reach flows shall be determined based on a reservoir elevation of 129.5 feet mean sea level and the Roanoke Rapids dam spillway gate openings, and all minimum flows shall be discharged through the north and south spillway gates of the Roanoke Rapids dam, such that the water is evenly distributed in the bypassed reach.

By January 31 of each year, the licensee shall provide the Commission, and the members of the CMT: (1) a schedule for freshet flow events to occur in the following year; (2) a report summarizing the previous year's freshet flow events; (3) the commencement and cessation of the anadromous fish spawning flows; (4) any changes made to the winter base flow; (5) any changes made to the anadromous fish spawning flow; (6) any changes made to the anadromous fish spawning period; (7) any determination by the CMT of whether the current study cycle should be shortened or extended; and (8) any determination by the CMT of whether an additional study cycle is needed.

These flows may be temporarily modified if required by operating emergencies beyond the control of the licensee, for flood control, or for short periods of time upon mutual agreement among the licensee, and the members of the CMT. If the minimum flows are so modified, the licensee shall notify the Commission and the members of the CMT as soon as possible, but no later than 10 days after each such incident.

Article 408. Roanoke River Bypassed Reach Ramping Rates. The licensee shall reduce flows in the Roanoke Rapids bypassed reach according to the following table, when flows in the bypassed reach have receded to or are at 5,000 cfs. If flood releases occur but do not reach 5,000 cfs through the floodgates, the licensee shall reduce flows in the bypassed reach according to the table below, starting with whatever maximum release was reached during the flood event.

<u>Hour</u>	<u>Discharge (cfs)</u>
0	5,000
4	4,000
8	3,000
12	2,000
16	1,500
20	1,000
24	700
28	500
32	325

These flows and ramping rates may be temporarily modified if required by operating emergencies beyond the control of the licensee, for flood control, or for short periods of time upon mutual agreement among the licensee, the U.S. Army Corps of Engineers, the North Carolina Wildlife Resources Commission (NC Wildlife Resources), and the North Carolina Department of Environment and Natural Resources (NC Environment and Natural Resources). If the flows are reduced at a rate greater than shown in the table, the licensee shall notify the Commission, NC Wildlife Resources and NC Environment and Natural Resources as soon as possible, but no later than 10 days after each such incident.

Article 409. Roanoke Rapids Flow Operating Restrictions. Within 30 days of the issuance date of this license, the licensee shall operate the Roanoke Rapids development under the following restrictions, and in accordance with the following schedule. The purpose of these flows and restrictions is to protect and enhance water quality and the biological integrity of the Roanoke River downstream of the Roanoke Rapids development. The flow restrictions listed in this article shall be inclusive of the bypassed reach flows.

From December 1 through January 15, the licensee shall maintain a minimum flow of 2,000 cubic feet per second (cfs) if the U.S. Army Corps of Engineers' (Corps) weekly flow declaration for the Kerr dam is less than 6,000 cfs, or the daily mean of the weekly declaration (as defined in Settlement Agreement Article GP2), whichever is less. Notwithstanding, the licensee shall only release flows less than 2000 cfs pursuant to the provisions of article 405 of this license and settlement agreement article FL2, Section 4.2. If the Corps' weekly flow declaration for the Kerr dam is equal to, or greater than, 6,000 cfs, the licensee shall maintain a minimum flow of 2,500 cfs.

From January 16 through the end of February, the licensee shall maintain a minimum flow of 2,500 cfs if the Corps' weekly flow declaration for the Kerr dam is less than 6,000 cfs, or the daily mean of the weekly declaration (as defined in Settlement Agreement Article GP2), whichever is less. Notwithstanding, the licensee shall only release flows less than 2000 cfs pursuant to the provisions of article 405 of this license and settlement agreement article FL2, Section 4.2. If the Corps' weekly flow declaration for the Kerr dam is equal to, or greater than, 6,000 cfs, the licensee shall maintain a minimum flow of 3,000 cfs.

From March 1 through March 31, the licensee shall be afforded up to five days with which to operate in a peaking mode, provided that peaking operations occur only subject to all of the following conditions: (1) for no more than three consecutive days; (2) for no more than three days in any 7-day period; (3) during no more than two weeks during the month of March; (4) for no more than two days from March 25 through March

31; and (5) provided further that the Corps' weekly declaration flow is greater than 3,500 cfs. During peaking operations, the licensee shall maintain a minimum flow of 3,500 cfs, and maintain an 8,500-cfs flow for 1 hour as flows are increased from the minimum flow to the generation flow and decreased from the generation flow to the minimum flow. At all other times, the licensee shall maintain a continuous flow equal to the daily mean of the Corps' weekly declaration flow for Kerr Dam (as defined in Settlement Agreement Article GP2).

From April 1 through June 15, the licensee shall maintain, at all times, a continuous minimum flow equal to the Corps' weekly declaration flow for the Kerr dam (as defined in Settlement Agreement Article GP2), and no change in weekly flow shall exceed 5,000 cfs per hour.

From June 16 through November 30, the licensee shall maintain the following minimum flows:

<u>Time Period</u>	<u>Discharge (cfs)</u>
June 16 – 30	2,800
July 1 – September 15	2,000
September 16 – November 15	1,500
November 16 – 30	2,000

Under drought conditions, as determined by the Corps', the licensee shall maintain, between January 1 and August 31, a minimum flow of 2,000 cfs; and between September 1 and November 30, a minimum flow of 1,500 cfs; and between December 1 and December 31, a minimum flow of 2,000 cfs.

These flows and ramping rates may be temporarily modified if required by operating emergencies beyond the control of the licensee, for flood control, or for short periods of time upon mutual agreement among the licensee, the Corps, the North Carolina Wildlife Resources Commission (NC Wildlife Resources) and the North Carolina Department of Environment and Natural Resources (NC Environment and Natural Resources). If the minimum flows are so modified, the licensee shall notify the Commission, NC Wildlife Resources, NC Environment and Natural Resources, and National Marine Fisheries Service as soon as possible, but no later than 10 days after each such incident.

Article 410. Flood Control Operation. The licensee shall coordinate project power operations at the Roanoke Rapids and Gaston Project with the U.S. Army Corps of Engineer's (Corps) operation of the upstream John H. Kerr Project at flows greater than

8,000 cfs, such that flood flows at Roanoke Rapids dam are reduced according to the schedule outlined herein.

Upon license issuance, the licensee shall reduce flood flow releases in consultation with the Corps. Reduction in flood flow releases from the flood gates below 5000 cfs shall be in accordance with Article 408. In addition, the licensee shall implement, in coordination with the North Carolina Division of Water Quality (NC Water Quality) and the Corps, the following step-down schedule from a 20,000-cfs flow. The purpose of the step-down schedule is to (1) reduce flood flows in the main stem river gradually during the months of May through September and (2) minimize the effects of hypoxic water inflow from the Roanoke River floodplain to the mainstem Roanoke River.

<u>Hour</u>	<u>Flow (cfs)</u>
0	17,000
8	14,000
16	12,000
20	11,000
24	10,500
28	10,000
32	9,500
36	9,000

The aforementioned step-down schedule represents a maximum flow reduction schedule. A slower step-down schedule, one that arrives at the 9,000-cfs flow over a longer period of time, may be mutually agreed to by the licensee, NC Water Quality, and the Corps, on a case-by-case basis.

The licensee shall not engage in any load-following operations during the time frame needed to execute the flow reduction schedule.

The step-down schedule may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods for project maintenance purposes, upon mutual agreement between the licensee, NC Water Quality, and the Corps. If the modified step-down schedule results in the licensee reaching 9,000 cfs more quickly than the table above, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 411. Bypassed Reach Flow Release Plan. Within 270 days of the issuance date of this license, the licensee shall file for Commission approval, a plan for passing water from Roanoke Rapids dam into the Roanoke River bypassed reach. The purpose of the plan is to enhance, maintain, and protect fish and wildlife habitat and biological

integrity in the bypassed reach. The licensee shall prepare the plan after consultation with the Cooperative Management Team, as set forth in Article 427 of this license, consisting of the North Carolina Wildlife Resources Commission, the North Carolina Department of Environment and Natural Resources, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Regional Partnership of Local Governments as an ex officio member.

The plan at a minimum shall include: (1) provisions for facilitating management of downstream passage and minimizing the escapement of resident fish from Roanoke Rapids Lake, consistent with state and federal fishery management objectives for the Roanoke Rapids Lake and the Roanoke River basin; (2) an evaluation of methods of passing water including, but not limited to, (a) spillway gate valves, (b) siphons, and (c) auxiliary hydropower turbines; (3) provisions for (a) screening, (b) repositioning of intake portals, (c) light barriers, (d) sound barriers, or (e) electrical barriers or something similar to minimize the escapement of resident fish from Roanoke Rapids Lake; (4) the method for measuring minimum flows in the Roanoke River bypassed reach, consistent with the requirements of Article 407; and (5) an implementation schedule.

With respect to the plan required by this article, the licensee shall submit to the Commission documentation of its consultation, as set forth in Article 427. 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 412. Project Operation and Flow Monitoring Plan. Within 270 days of the issuance date of this license, the licensee shall file with the Commission, for approval, a plan to monitor compliance with project operations, including lake level fluctuation, within-day and within-week peaking operations, and the flows for the Roanoke Rapids bypassed reach and the lower Roanoke River, as required by Articles 405, 406, 407, 408, 409, 410, and 424, respectively.

The plan shall provide a means to independently verify compliance with the project operational and flow requirements of this license. The plan shall identify the monitoring methods and locations of monitoring devices necessary to ensure that the project is operated in a manner consistent with Articles 405, 406, 407, 408, 409, 410, and 424.

The plan shall include, at a minimum:

- (1) a description of all gages (including staff gages) and other equipment necessary to monitor (a) water levels in Lake Gaston and Roanoke Rapids

Lake, as required by Article 406, (b) Lake Gaston and Roanoke Rapids Lake tailrace levels, and (c) Roanoke Rapids bypass flow and lower Roanoke River flow requirements, as identified in Articles 405, 407, 408, 409, 410, and 424;

- (2) procedures for recording and maintaining data on the project operations, as well as flows in the Roanoke Rapids bypassed reach and in the Roanoke River immediately downstream from the Roanoke Rapids tailrace;
- (3) provisions for reporting appropriate project operations and flow data and information to the resources agencies and the Commission; and
- (4) a schedule for implementing the plan.

The plan shall include provisions consistent with the emergency notification requirements for project operation and the instream flows required by this license. In addition, should impoundment elevations or instream flows, as measured according to the approved monitoring plan, fall below the levels required by this license, the plan shall include a provision whereby the licensee files with the Commission a report of the incident within 30 days of the incident.

The report shall, to the extent possible, identify the cause, severity, and duration of the incident, and any observed or reported adverse environmental impacts resulting from the incident. The report also shall include:

- (1) operational data necessary to determine compliance with this article;
- (2) a description of any corrective measures implemented at the time of the occurrence and the measures implemented or proposed to ensure that similar incidents do not recur; and
- (3) comments or correspondence, if any, received from the North Carolina Wildlife Resources Commission (NC Wildlife Resources), the North Carolina Department of Environment and Natural Resources (NC Environment and Natural Resources), the Virginia Department of Environmental Quality (Virginia Environmental Quality), the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NOAA Fisheries), and The Nature Conservancy regarding the incident.

Based on the report and the Commission's evaluation of the incident, the Commission reserves the right to require modifications to project facilities and operations to ensure future compliance.

The licensee shall prepare the project operation and flow monitoring plan in consultation with NC Wildlife Resources, NC Environment and Natural Resources, Virginia Environmental Quality, USFWS, NOAA Fisheries, the U.S. Geological Survey, and The Nature Conservancy. The licensee shall include, with the plan, documentation of agency 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. In reporting the results of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The Commission reserves the right to require changes to the plan. No ground disturbing or land-clearing activities for installation and use of new monitoring devices shall begin until the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 413. *Roanoke River Bypassed Reach Biological Monitoring Plan.* Within one year of the issuance date of this license, the licensee shall file for Commission approval, a plan to monitor the effectiveness of the bypassed reach minimum flows required by Article 407, for enhancing anadromous fish spawning success, and for determining species composition and relative abundance of resident fish and mollusks in the bypassed reach.

The licensee shall prepare the plan in consultation with members of the Cooperative Management Team (CMT), as set forth in Article 427, consisting of the North Carolina Wildlife Resources Commission, North Carolina Department of Environment and Natural Resources, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Regional Partnership of Local Governments as an ex officio member.

The plan, at a minimum, shall include: (1) identification of anadromous fish spawning success criteria and specific test hypotheses to evaluate the effect of different spawning flows on spawning success; (2) a detailed description of the monitoring protocol and data standards for each variable used to evaluate spawning success; (3) the means by which the final determination of appropriate spawning flows will be made, including, among others, optimizing anadromous fish spawning while recognizing the impact of lost generation; (4) a detailed description of the monitoring protocol and data standards for each variable used to assess the species composition and relative abundance

of resident fish and mollusks; and (5) a schedule for implementing the plan and providing the monitoring results to the Commission, and the members of the CMT

The licensee shall conduct studies of anadromous fish annually. The licensee's funding obligations for monitoring anadromous fish shall be \$30,000 per year, plus one-third of costs exceeding \$30,000 if matched by other entities. The licensee shall monitor resident fish at 5-year intervals and mollusks at 7-10 year intervals. The licensee's funding obligations for monitoring resident fish shall be \$20,000 per survey, plus one-third of costs exceeding \$20,000 if matched by other entities. The licensee's funding obligations for monitoring mollusks shall be \$10,000 per survey, plus one-third of costs exceeding \$10,000 if matched by other entities. Reports describing results of anadromous fish, resident fish and mollusk monitoring shall be prepared at 1, 5 and 7-10 year intervals, respectively.

With respect to the plan required by this article, the licensee shall submit, to the Commission, documentation of its consultation carried out pursuant to Article 427. 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.

Short-term changes to any study or monitoring plan required by this article and undertaken in response to events that may alter flow releases or affect monitoring effectiveness may be made after consultation with the members of the CMT, as set forth in Article 427. Any such changes shall be reported to the Commission within 30 days of being determined necessary.

Following plan approval, any long-term changes to project operations or facilities identified by the monitoring results to mitigate environmental impacts, and not previously approved by the Commission in the plan, may not be implemented without prior Commission approval.

Article 414. Project Within-Day Peaking Operations. Within one year of the issuance date of this license, the licensee shall file with the Commission, for approval, a plan to monitor, evaluate, and, if determined to be necessary, reduce the contribution of the licensee's within-day peaking operations to bank erosion and potential effects on fish, and macroinvertebrates in the Roanoke River downstream from Roanoke Rapids dam. These operational changes shall not require modification to the U.S. Army Corps of Engineer's (Corps) weekly declaration (as defined in Settlement Agreement Article GP2). Such reduction shall be implemented to contribute to recruitment and survival of flora and fauna in numbers and locations that are adequate to sustain or restore the biological integrity of the bank and instream ecosystems.

The plan shall include, at a minimum, the following features, consistent with Settlement Agreement Article FL3:

(1) a description of the management objectives, all monitoring protocols, data standards, specific monitoring variables, testable hypotheses, success or decision criteria, monitoring cycles (consisting of five-year periods), procedures for selecting monitoring sites and notifying the Commission of the selections, any other appropriate monitoring protocols, and procedures for revisions to these protocols on the basis of the monitoring results;

(2) a provision for the licensee to provide annual funding to commence no later than January 31, 2005, in the amount of \$30,000 for implementation of this plan, subject to carry-over of any funds not spent in a given year and provisions for consulting with the CMT, as set forth in Article 427, in the thirtieth year of the license to determine if increased levels of funding are needed;

(3) a description of the procedures whereby the licensee, as set forth in Article 427, shall consult with the Cooperative Management Team (CMT), consisting of the North Carolina Wildlife Resources Commission, the North Carolina Department of Environment and Natural Resources, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, The Nature Conservancy, and the Regional Partnership of Local Governments in an *ex officio* capacity, to develop and, following the Commission's approval, implement the plan. Among other things, the plan shall provide for a determination, at the end of each monitoring cycle, of whether a causal link exists between within-day peaking operations and bank erosion or adverse effects on fish and macroinvertebrates;

(4) a description of the procedures whereby the licensee, at the beginning of a monitoring cycle, shall respond to the determination required by paragraph (3) above, including (a) continuation and any revision to the monitoring for the next monitoring cycle and (b) a protocol for determining the need for any modification (or step change) to the licensee's discretion for within-day peaking operations if the determination required by paragraph (3) is affirmative. A step change shall reduce the licensee's discretion for within-day peaking operations by a proportional amount equivalent to 5 divided by the term of the license in years. The number of peaking days per year will not be reduced below the frequency of unregulated high flow days, on a monthly or seasonal basis, and the minimum number of days available for within-day peaking shall not be reduced below 40 days per year;

(5) a definition of an unregulated high flow day and a procedure for determining the frequency of unregulated high flow days per (4) above and Settlement Agreement Article FL3, section 3.3;

(6) a description of the starting point and range of possible modifications of the licensee's discretion for "within-day" peaking operations, including items listed in Settlement Agreement Article FL3, Sections 2.1 and 3;

(7) a provision to file, with the Commission, every 5 years, commencing April 1, 2010, and continuing throughout the license term, a monitoring report that includes the results of the monitoring, evaluations of the effects of within-day peaking operations, and notice of intended within-day peaking operations for the next five years. Copies of the monitoring report shall also be sent to the members of the CMT; and

(8) an implementation schedule.

With respect to the plan required by this article, the licensee shall submit to the Commission documentation of its consultation, as set forth in Article 427. The Commission reserves the right to require changes to the plan. The plan shall not be implemented until the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

The monitoring cycles shall last for the duration of the license term, unless terminated earlier. The licensee shall submit any recommendation for such early termination, following consultation with the CMT, as set forth in Article 427, for the Commission's approval.

Short-term changes to any study or monitoring plan required by this article and undertaken in response to events that may alter flow releases or affect monitoring effectiveness may be made after consultation with the members of the CMT, as set forth in Article 427. Any such changes shall be reported to the Commission within 30 days of being determined necessary.

Following plan approval, any long-term changes to project operations or facilities identified by the monitoring results to mitigate environmental impacts, and not previously approved as part of the plan, may not be implemented without prior Commission approval.

Article 415. Project Within-Week Peaking Operations. Within one year of license issuance, the licensee shall file with the Commission, for approval, a plan to monitor, evaluate, and, if necessary, reduce the effects of within-week peaking operations on

growing season floods, erosion, and suppression of vegetation and fauna in the riparian ecosystems downstream of the Roanoke Rapids Dam. Such reduction is intended to contribute to recruitment and survival of flora and fauna in numbers and locations that are adequate to sustain the riparian ecosystem. Changes to within-week peaking operations shall not constrain the licensee's within-day peaking operation nor require modification to the U.S. Army Corps of Engineer's (Corps) weekly declaration (as defined in Settlement Agreement Article GP2).

The plan shall include, at a minimum, the following features, consistent with Settlement Agreement Article FL4:

(1) a provision to monitor riparian species, communities and erosion variables including but not limited to the following:

(a) seedlings of red maple (*Acer rubrum*), water hickory (*Carya aquatica*), green ash (*Fraxinus pennsylvanica*), sweet gum (*Liquidambar styraciflua*), tupelo gum (*Nyssa aquatica*), swamp black gum (*Nyssa biflora*), laurel oak (*Quercus laurifolia*), overcup oak (*Quercus lyrata*), swamp chestnut oak (*Quercus michauxii*), cherrybark oak (*Quercus pagoda*), bald cypress (*Taxodium distichum*), and American elm (*Ulmus americana*);

(b) large moths and butterflies, including forest tent caterpillar (macro-lepidoptera);

(c) terrestrial crawfish (*Cambarus spp.*);

(d) benthic macroinvertebrates in tributary streams;

(e) natural communities (to be monitored in the last growing season of every fourth monitoring cycle), including forested peatlands (Atlantic white cedar, bay forest, mixed bay-pine forest, swamp blackgum, bay-swamp blackgum, and mixed deciduous peatland), swamp forests (tupelo-cypress), and bottomland hardwoods (maple, oak, green ash, sweetgum, and tupelo); and

(f) bank vegetation (herbaceous and woody cover) and bank erosion (scouring and mass wasting).

(2) a description of the management objectives, all monitoring protocols, data standards, specific monitoring variables, testable hypotheses, success or decision criteria, monitoring cycles (consisting of five-year periods), procedures for selecting monitoring sites and notifying the Commission of the selections, any other appropriate monitoring

protocols, and procedures for revisions to these protocols on the basis of the monitoring results;

(3) a provision for the licensee to provide funding in the amount of \$100,000 no later than January 31, 2005, plus up to \$25,000 if matched by other entities; and an amount of \$50,000 per year thereafter, plus up to \$25,000 if matched by other entities, subject to carry-over of any funds not spent in a given year;

(4) a description of the procedures whereby the licensee, as set forth in Article 427, shall consult with a Cooperative Management Team (CMT), consisting of the North Carolina Wildlife Resources Commission, the North Carolina Department of Environment and Natural Resources, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, The Nature Conservancy, and the Regional Partnership of Local Governments in an *ex officio* capacity, to develop, and following the Commission's approval, implement the plan. Among other things, the plan shall provide for a determination at the end of each monitoring cycle, of whether a causal link exists between within-week peaking operations and growing season floods and adverse effects on any of the monitored species;

(5) a description of the procedure whereby the licensee shall respond to the determination required by paragraph (4) above, including (a) continuation and any revision to the monitoring for the next monitoring cycle and (b) a protocol for determining the need for any modification (or step change) that modifies the licensee's net rescheduling of the Corp's weekly declaration (as defined in Settlement Agreement Article GP2) if the determination required by paragraph (4) is affirmative. Each such step change shall reduce or increase (depending upon the means chosen) the licensee's net rescheduling of the Corps' weekly declaration by half of any previous step change, as appropriate to achieve the stated purpose;

(6) a description of the starting point and range of possible modifications of the licensee's discretion for "within-week" peaking operations, including items listed in Settlement Agreement Article FL4, Sections 2.1 and 3;

(7) a provision to file with the Commission, every 5 years, commencing April 1, 2010, and continuing throughout the license term, a monitoring report that includes the results of the monitoring, assesses the effects of within-week peaking operations on the riparian ecosystems of the Roanoke River downstream from the Roanoke Rapids Dam, and notice of intended within-week peaking operations for the next five years. Copies of the monitoring report shall also be sent to the members of the CMT; and

(8) an implementation schedule.

With respect to the plan required by this article, the licensee shall submit to the Commission documentation of its consultation, as set forth in Article 427. The Commission reserves the right to require changes to the plan. The plan shall not be implemented until the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

The monitoring cycles shall last for the duration of the license term, unless terminated earlier. The licensee shall submit any recommendation for such early termination, following consultation with the members of the CMT, as set forth in Article 427, for Commission approval.

Short-term changes to any study or monitoring plan required by this article and undertaken in response to events that may alter flow releases or affect monitoring effectiveness may be made after consultation with the members of the CMT, as set forth in Article 427. Any such changes shall be reported to the Commission within 30 days of being determined necessary.

Following plan approval, any long-term changes to project operations or facilities identified by the monitoring results to mitigate environmental impacts, and not previously approved as part of the plan, may not be implemented without prior Commission approval.

Article 416. Fishery Enhancement Plan. Within one year of the issuance date of this license, the licensee shall file, for Commission approval, a plan to enhance the sport fisheries in Lake Gaston and Roanoke Rapids Lake. The plan shall describe the licensee's responsibilities towards enhancing the sport fisheries in Lake Gaston and Roanoke Rapids Lake through supplemental stocking and fisheries evaluations.

The fishery enhancement plan shall include, but not necessarily be limited to:

- (1) the licensee's funding obligations for enhancing the lake's fisheries through supplemental stocking and other management activities in the amounts of \$50,000 per year to the North Carolina Wildlife Resources Commission (NC Wildlife Resources), and \$10,000 per year to the Virginia Department of Game and Inland Fisheries (VA Game and Inland Fisheries), beginning January 1, 2005;
- (2) a schedule for providing funds and notification to the Commission when the funds are provided to the NC Wildlife Resources and VA Game and Inland Fisheries;

- (3) a description of the licensee's obligations towards developing a plan to evaluate the lake's fish populations and fisheries on a 5-year cycle.

The licensee shall prepare the fishery enhancement plan in consultation with NC Wildlife Resources and VA Game and Inland Fisheries. The licensee shall include with the plan, documentation of agency 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. In reporting the result of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The Commission reserves the right to require changes to the plan. Implementation of any provision outlined in the plan shall not commence until the Commission notifies the licensee that the filing is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 417. Reservation of Authority – Fishway. Pursuant to Section 18 of the Federal Power Act, authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance, of such additional or modified fishways as may be prescribed by either the Secretary of the Interior or the Secretary of Commerce.

Article 418. Bald Eagle Protection and Monitoring. Pursuant to the measures identified by the U.S. Fish and Wildlife Service (USFWS) in a letter filed on March 16, 2004, the licensee shall conduct surveys to monitor bald eagle (*Haliaeetus leucocephalus*) activity and habitat in the project area. The specific survey requirements and procedures, which shall be implemented within 30 days of license issuance, include the following provisions.

- (1) When the licensee is performing lake surveys, the staff shall watch for, and note on a map, observations of bald eagles from November 1 – July 31. This information shall be reported to the USFWS's Raleigh Field Office by August 31 of each year. The licensee shall also file a copy of the report with the Commission and the North Carolina Wildlife Resources Commission (NC Wildlife Resources) at the same time.
- (2) When the licensee is conducting on-site meetings with adjacent landowners to discuss proposed work on project property, the staff shall visually survey the

surrounding area from the ground for any eagle nesting activity. If a potential eagle nest is located, the licensee shall (a) notify the USFWS's Raleigh Field Office prior to allowing any vegetation clearing or other work to occur on the licensee's property, and (b) recommend the landowner delay any clearing or other work on their property prior to consulting with the USFWS. Any activity conducted pursuant to this part shall be reported in accordance with the reporting requirements outlined in Item (1) of this article.

- (3) In conjunction with the review and update process for the shoreline management plan, as required by Article 421, the licensee shall conduct an aerial eagle survey of the total project area within 1,500 feet of the project impoundments and the Roanoke Rapids bypassed reach during the January 1 – May 31 bald eagle nesting season every 5 years. The results of this aerial survey shall be reported to the USFWS's Raleigh Field Office by August 31 of the year the survey was conducted. The licensee shall also file a copy of the report with the Commission and NC Wildlife Resources at the same time.

Any recommendations for additional measures to protect bald eagles and their habitat at the project, which result from the monitoring conducted under this article, shall be filed with the Commission, for approval, at the same time the annual and aerial survey report(s) are filed. Any such recommendations shall be developed in consultation with the USFWS and NC Wildlife Resources. The licensee shall include with its filing documentation of consultation with the agencies. The Commission reserves the right to require changes to the license if the need for additional bald eagle protective measures is identified.

Article 419. Waterfowl Management Area Plan. Within 3 years of the issuance date of this license, the licensee shall file, for Commission approval, a plan to construct a water control structure(s) adjacent to Lake Gaston to provide waterfowl habitat. The plan shall be developed after consultation with the Virginia Department of Game and Inland Fisheries, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and Ducks Unlimited.

The waterfowl management area plan shall include, but not be limited to: (1) a description of the funding to be provided by other parties; (2) any feasibility study that forms the basis for the waterfowl management area; (3) a map that clearly identifies the location of the waterfowl management area in relation to Lake Gaston; (4) the estimated size (in acres) of the waterfowl management area; (5) design drawing(s) of the water control structure(s); (6) a description of the licensee's estimated cost to construct the water control structure(s); and (7) the entity responsible for the operation and maintenance of the waterfowl management 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 Ducks Unlimited, and specific descriptions of how the agencies' and Ducks Unlimited's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies and Ducks Unlimited to comment and make recommendations prior to filing the plan with the Commission. In reporting the results of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The licensee's obligation under this article shall be limited to \$100,000. The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the Commission notifies the licensee that the plan is approved. Upon Commission approval the licensee shall implement the plan, including any changes required by the Commission. Any structure(s) built in accordance with this plan shall be shown on the as-built drawings filed pursuant to Article 301 of this license.

Article 420. Shoreline Management Plan. Within 270 days of license issuance, the licensee shall file, for Commission approval, an updated shoreline management plan (SMP) for the Roanoke Rapids and Gaston Project. The shoreline management plans shall be based on the December 2000 "Shoreline Management Plan for the Roanoke Rapids and Gaston Hydroelectric Project." The licensee shall make the plan available to the public through its website.

The updated shoreline management plan shall be prepared in consultation with the North Carolina Wildlife Resources Commission (NC Wildlife Resources); the Virginia Department of Game and Inland Fisheries (VA Game and Inland Fisheries); the U.S. Fish and Wildlife Service (USFWS); Lake Gaston Association; the City of Roanoke Rapids, North Carolina; and the Regional Partnership of Local Governments (Local Governments).

The licensee shall include, with the SMP, documentation of consultation, copies of comments and recommendations on the completed SMP after it has been prepared and provided to the agencies and other entities, and specific descriptions of how the agencies' and other entities' comments are accommodated by the SMP. The licensee shall allow a minimum of 30 days for the agencies and other entities to comment and to make recommendations before filing the plan with the Commission. In reporting the results of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The Commission reserves the right to require changes to the SMP. Upon Commission approval, the licensee shall implement the SMP, including any changes required by the Commission.

The licensee may modify the construction procedures and permitting requirements upon mutual agreement with NC Wildlife Resources, VA Game and Inland Fisheries, USFWS, the Lake Gaston Association, the City of Roanoke Rapids, and Local Governments. In accordance with the reporting requirements of Article 426, licensee shall file a list of modifications to the construction procedures and permitting requirements with the Commission no later than January 31 of each year.

Article 421. Shoreline Management Plan Review and Update Procedures. The licensee shall participate in the collaborative review process and update the Shoreline Management Plan (SMP), filed pursuant to Article 420 of this license, as set forth in this article.

The licensee shall review the SMP every 5 years, in consultation with the North Carolina Wildlife Resources Commission (NC Wildlife Resources), the Virginia Department of Game and Inland Fisheries (VA Game and Inland Fisheries), the U.S. Fish and Wildlife Service (USFWS), the Lake Gaston Association, the City of Roanoke Rapids, North Carolina, and the Regional Partnership of Local Governments (Local Governments). The first review cycle will commence 5 years after the SMP filed pursuant to Article 420 is approved by the Commission.

The licensee shall host at least one formal meeting that is open to the public, with at least a 30-day advanced notice, during the 5-year review. This review shall be in consultation with representatives from each of the entities listed above.

Within 60 days of completing the review and receiving comments on the SMP, the licensee shall file a report, with the Commission, that includes any recommendations for changes to the previously approved SMP. The licensee shall include with the report, documentation of consultation, copies of comments and recommendations received during the review of the SMP, and specific descriptions of how the entities' comments are accommodated by any proposal to revise the SMP. In reporting the results of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The Commission reserves the right to require changes to the SMP. Upon Commission approval, the licensee shall implement the SMP, including any changes

required by the Commission. The licensee shall post on its website the revised SMP within 90 days of receiving approval from the Commission.

The licensee may modify the Construction and Use procedures and permitting requirements upon mutual agreement with NC Wildlife Resources, VA Game and Inland Fisheries, USFWS, the Lake Gaston Association, the City of Roanoke Rapids, and Local Governments. In accordance with the reporting requirements of Article 426, licensee shall file a list of modifications to the Construction and Use Procedures and permitting requirements with the Commission no later than January 31 of each year.

Article 422. Recreation Monitoring. The licensee shall monitor recreation use at the Roanoke Rapids and Gaston Project to determine whether existing recreation facilities are meeting recreation needs.

- (1) Lake Gaston and Roanoke Rapids Lake Fishery. To monitor recreation use, the licensee shall develop a recreational user survey, after consultation with the North Carolina Wildlife Resources Commission (NC Wildlife Resources), and the Virginia Department of Game and Inland Fisheries (VA Game and Inland Fisheries), and in conjunction with the Roanoke Rapids and Lake Gaston Fishery Enhancement Plan required by Article 416 of this license. If NC Wildlife Resources performs the survey, the licensee shall fund NC Wildlife Resources \$40,000 per survey. If the survey performed by NC Wildlife Resources exceeds \$40,000, the licensee shall fund up to an additional 20 percent once documentation is provided of the additional costs.

The licensee shall conduct, or provide for an entity to conduct, the recreational user survey once every 6 years at Lake Gaston or Roanoke Rapids Lake, concurrent with the filing of FERC Form-80 required by Section 8 of the Commission's regulations (18 CFR 8.11). The recreational user survey shall alternate between Lake Gaston and Roanoke Rapids Lake. Upon mutual agreement among NC Wildlife Resources, VA Game and Inland Fisheries, and the licensee, two consecutive surveys may occur on either Lake Gaston or Roanoke Rapids Lake, if deemed necessary.

During the term of the license, concurrent with the filing of FERC Form-80, the licensee shall file a report with the Commission on the recreation use survey results. The report shall include, at a minimum, information on fish catch rates, fish harvest estimates, economic estimates, lake carrying capacity and user satisfaction with the recreational value of the lakes. The licensee shall consult with the NC Wildlife Resources and VA Game and Inland Fisheries to determine if changes are needed in the Lake Fishery Enhancement Plan and delineate said changes in the plan consistent with Article 416 of this license.

- (2) Concurrent with filing the FERC Form 80, the licensee shall report to the Commission a separate evaluation to determine if the Roanoke Rapids and Gaston Day Use Areas are meeting the goals of the recreational provisions. The report shall include, at a minimum: (a) recreation use figures; (b) a discussion of the adequacy of the licensee's recreation facilities at the project site to meet recreation needs; (c) a description of the methodology used to collect all study data; (d) any recreation measures proposed by the licensee to accommodate recreation needs in the project area; and (e) a discussion of the adequacy of, and need for, additional measures to enhance the Lake Gaston and the Roanoke Rapids Day Use Areas.

For each of the reports required in provisions (1) and (2) above, the licensee shall include, with the report, documentation of agency consultation, copies of comments and recommendations on the completed report after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the report. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the report with the Commission. In reporting the results of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The Commission reserves the right to require changes to the license if the report required by provision (2) identifies the need for changes to the recreational facilities at the project. If the recreation-use surveys identify the need for additional facilities, such facilities shall not be implemented without prior Commission approval, after the filing of an application to amend the recreation plan filed pursuant to Article 423 of this license.

Article 423. Recreation Plan. Within one year of the issuance date of this license, the licensee shall file, for Commission approval, a final recreation plan to enhance recreation resources at the Roanoke Rapids and Gaston Project, consistent with Settlement Agreement Article RC1. The licensee shall develop the plan after consultation with the North Carolina Wildlife Resources Commission (NC Wildlife Resources); the Virginia Department of Game and Inland Fisheries; the Virginia Department of Conservation and Recreation; the City of Roanoke Rapids, North Carolina; the Lake Gaston Association; and the Regional Partnership of Local Governments. In addition, the licensee shall develop the final plan in conjunction with the Historic Properties Management Plan required as part of the Programmatic Agreement under Article 425 of this license, so that recreational enhancements do not conflict with the Historic Properties in the project area.

The final recreation plan shall include, but not be limited to, the measures identified below.

- (1) Lake Gaston Day Use Area: (a) improvement to the existing fishing pier; (b) picnic tables; (c) trash cans; (d) two horseshoe pits; (e) a picnic pavilion with changing rooms; (f) a four-foot-wide paved path along the beach to the pier, accessible to individuals with disabilities; (g) leased portable toilet(s); and (h) an information kiosk.
- (2) Roanoke Rapids Day Use Area: (a) an extension of the existing Roanoke Canal Trail; (b) a nature trail and fitness loops; (c) a gravel surface parking area for 100 vehicles; (d) renovation and expansion of the beach area; (e) trash cans; (f) two horseshoe pits; (g) picnic tables; (h) three single sheltered tables; (i) a covered picnic pavilion that accommodates up to 40 people; (j) a covered picnic pavilion that accommodates up to 100 people and includes a restroom area; (k) a fishing pier accessible to individuals with disabilities; and (l) an information kiosk.
- (3) Roanoke Rapids Tailrace Fishing Area: (a) public access to the Roanoke Rapids bypassed reach, including improvements to the existing tailrace fishing area; and (b) public safety signs.
- (4) Bank Fishing and Water to Land Sites: (a) a tailrace fishing area at the Lake Gaston Dam with an improved road to the area; (b) a bank fishing area at the north end of Lake Gaston Dam; (c) a bank fishing area at the NC Wildlife Resources boat landing at Stonehouse Creek; and (d) a bank fishing area where Route 615 crosses Miles Creek; and (e) a water to land recreation area near Nocarva peninsula.
- (5) Lake Boating Enhancements: (a) install and maintain mile marker buoys on Lake Gaston; and (b) at the six North Carolina boat landing sites on Roanoke Rapids Lake and Lake Gaston, (i) install lights, (ii) a description of the licensee's annual contribution to NC Wildlife Resources per boat landing for the operation and maintenance of the six boat landing sites, and (iii) install appropriate signs at the boat landing sites.

The recreation plan shall include the licensee's funding obligations for developing and enhancing each of the recreation enhancements listed above. The licensee's obligation for funding for each of the recreation enhancements is limited as follows:

- | | |
|-------------------------------|----------|
| (1) Lake Gaston Day Use Area: | \$84,000 |
|-------------------------------|----------|

(2)	Roanoke Rapids Day Use Area:	\$420,000
(3)	Roanoke Rapids Tailrace Fishing Area;	\$150,000
(4)	Bank Fishing Sites (three phase installation):	\$168,000
(5)	Lake Boating Enhancements:	
	(a) Light Installation	\$6,300
	(b) Annual NC Wildlife Resources maintenance funding	\$30,000
	(c) Hawtree Creek Boat Landing	\$105,000
(6)	Annual operation and maintenance of (1) and (2) above.	\$70,000

The final recreation plan shall also include: (1) a map(s) that clearly identifies all existing and proposed recreation sites and public access, in relation to the existing Roanoke Rapids and Gaston Hydroelectric Project boundary; (2) a provision for identifying any future need for camping platform(s) or other such recreational facilities along the Lower Roanoke River; (3) the length and width of any project-related recreation trails, paths, etc.; (4) a description of soil erosion and sediment control measures to be used during construction of the recreation facilities and public access; (5) a discussion of how the needs of the disabled were considered in the planning and design of the recreation facilities and public access; (6) a description of appropriate sign(s) to be placed at the recreation sites; (7) the entity or entities responsible for constructing, operating, and maintaining the facilities; (8) a description of the licensee's contribution to the Lake Gaston Virginia Day Use Area (licensee's obligation not to exceed \$472,500) and the Hawtree Creek Boat Landing; (9) a description of the community outreach program for the project and the licensee's monetary contribution to the program (licensee's obligation not to exceed \$1,000 annually); and (10) an implementation schedule.

The licensee shall include with the final recreation plan documentation of agency consultation, copies of comments and recommendations on the plan after it has been prepared and provided to the agencies and other entities, and specific descriptions of how the agencies' and other entities' comments and recommendations are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies and other entities to comment prior to filing the plan with the Commission. In reporting the results of the consultation with the Commission, the licensee shall document its compliance with the consultation process and provide either the agreement reached or documentation of any dispute, including the positions taken by the parties.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan. Any structure or facility

built or installed in accordance with this plan shall be shown on the as-built drawings filed pursuant to Article 301 of this license.

Article 424. Whitewater Boating Plan. Within 90 days of the issuance date of this license, the licensee shall file, for Commission approval, a plan to release flows into the lower Roanoke River between NC Highway 48 and the boat ramp at Weldon for whitewater boating. The licensee, as set forth in Article 427, shall develop the plan in consultation with the U.S. Army Corps of Engineers (Corps) and the members of the Cooperative Management Team (CMT), including the North Carolina Department of Environment and Natural Resources (NC Environment and Natural Resources); the City of Roanoke Rapids and Halifax County, North Carolina; and the Carolina Canoe Club.

The licensee shall coordinate the development of the whitewater boating plan with the provisions of Articles 404, 405, 409, 414, and 415 of this license. The plan shall include, but not be limited to, the provisions listed below.

(1) Paddler flows: During the planned releases described below, the flow from the Roanoke Rapids dam shall be between 2,000 cfs and 3,300 cfs as measured at the Roanoke Rapids gage. The plan shall include paddler flow targets, consistent with Settlement Agreement Article RC2, section 1.2.1.

(2) Advanced Planned Releases. The licensee shall provide recreational flow releases for two weekends in July, one weekend in August, and Labor Day weekend, for a total of four weekends. One of the July weekends shall be the weekend closest to July 4. The licensee shall post on its website by April 1 of each year the four weekend dates for the year, and the scheduled single days for each of the weekends. If the Corps' weekly declaration (as defined in Settlement Agreement Article GP2) for the week coinciding with a designated weekend is greater than or equal to 6,000 cubic feet per second (cfs) and the project is not in flood control mode, the licensee shall provide releases for one weekend day only. Otherwise, the licensee shall provide releases for both weekend days. The single days shall be two Saturdays and two Sundays. The licensee shall post on its website, by 10:00 a.m. on the Friday preceding the recreational flow release, the planned recreational flow and the times the scheduled flow shall be provided.

(3) Short-term Planned Releases. The licensee shall provide short-term planned releases between June 16 and October 31. If the Corps' weekly declaration (as defined in Settlement Agreement Article GP2) is less than or equal to 4,000 cfs, the licensee shall provide recreational flows for both weekend days. If the Corps' weekly declaration is less than 6,000 cfs and greater than 4,000 cfs, the licensee shall provide recreational flows for one weekend day. Otherwise, the licensee shall have no obligation

to provide recreational flows during the weekend. The licensee shall post on its website, by the Friday preceding the recreational flow release, the planned recreational flow and the times the scheduled flow shall be provided.

(4) Weekly Commencement of Planned Releases. Paddler flows shall begin on Fridays and Saturdays per the provisions of (2) above by 8:00 PM on Fridays when the Corps' weekly declaration (as defined in Settlement Agreement Article GP2) is less than 6,000 cfs; or when the weekly declaration is equal to or greater than 6,000 cfs, by 6:00 PM on Fridays prior to a single day Saturday recreational release, and by 4:00 PM on Saturdays prior to a single day Sunday recreational release. Paddler flows consistent with the provisions of (3) above shall begin by 4:00 pm on Saturdays when the weekly declaration is greater than 4,000 cfs, but less than 6,000 cfs, or by 8:00 pm on Fridays when the weekly declaration is less than or equal to 4,000 cfs.

(5) Information. The licensee shall maintain public information on its web page that includes, but is not limited to: (a) a link to the U.S. Geological Survey (USGS) Roanoke Rapids flow and gage data; (b) either a link to the USGS Halifax gage or a web camera view of the Weldon Rapids; (c) the dates of the advanced planned releases; (d) a daily update of predicted load following conditions for the next two days posted by 10:00 am each day; (e) the Corps' weekly flow declaration (as defined in Settlement Agreement Article GP2); and (f) an annual report, as discussed below.

The licensee shall develop, by February 15 of each year, an annual report of the weekend recreational flows for nine recreational releases. The nine reported weekends shall include one in June, and two in each of July, August, September, and October, and shall include the four advanced planned releases described in item (1) above. The report shall include, but not be limited to, the following: (1) the dates of the nine weekend recreational releases and an indication of which dates are advanced planned and short-term planned releases; (2) the Corps' weekly declarations (as defined in Settlement Agreement Article GP2) affecting each reported release, and the time peaking ceased on the day preceding each weekend recreational release day; and (3) the USGS Halifax gage readings for 9:00 a.m., 12:00 p.m., and 3:00 p.m. on the first day of each of the nine reported releases. The licensee shall provide the annual report to the Commission and the members of the CMT no later than February 15 of the year following each season of recreational releases.

The licensee shall convene a meeting of the members of the CMT within one year of the issuance of this license to establish performance indicators to determine if the objectives of this article are being met.

By February 15 of the year following the fifth year of releasing flows for whitewater boating, the licensee shall convene a meeting with the members of the CMT to assess the flows and identify any potential changes or adjustments to the recreational flows, consistent with Settlement Agreement Article RC2. The outcome of these meetings shall be filed with the Commission no later than 30 days after the meeting.

If changes to the river regulation rules at Kerr Reservoir or adaptive changes made through Articles 414 or 415 occur, the licensee shall convene a joint meeting of the CMT formed pursuant to this article and the CMTs established under Articles 414 and 415 to address effects of such changes on recreational releases and seek to modify operations such that the project operations meet the objectives of Articles 414 and 415 and, to the extent possible, provide the enhancements intended by this Article. If the Corps amends the guide curve or rule of operation for Kerr Reservoir, the licensee shall convene a meeting of the consulting parties within six months of implementing such an amendment and, if the licensee along with the members of the CMT determine that changes to recreational releases are required in response to such amendment, the licensee shall implement such changes within one year of implementing the amendment. If changes are made to the recreational flows in response to changes in Kerr Reservoir operation, the licensee shall notify the Commission as soon as possible, but no later than 10 days after making such changes.

With respect to the plan required by this article, the licensee shall submit to the Commission documentation of its consultation, as set forth in Article 427. The Commission reserves the right to require changes to the whitewater boating plan. Implementation of any provision outlined in the plan shall not commence until the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. The Commission also reserves the right to require changes to the whitewater boating plan if the whitewater flow reports identify the need for changes to the recreational flow releases downstream from the project. Any changes to the recreational flow releases identified by the licensee, and not previously approved as part of the white water boating plan, shall not be implemented until approved by Commission.

The recreational flow releases may be temporarily modified if required by operating emergencies beyond the control of the licensee (e.g., electrical demand emergencies, flood control operations, droughts), or for short periods of time upon mutual agreement among the licensee, NC Environment and Natural Resources, and the Corps. If the flows are so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after such incident. If an advanced planned release is cancelled due to emergencies or flood control, the licensee shall make a good faith effort to reschedule another advanced planned release during the recreational season.

Article 425. Programmatic Agreement. The licensee shall implement the “Programmatic Agreement Among the Federal Energy Regulatory Commission, the Commonwealth of Virginia, State Historic Preservation Officer, and the State of North Carolina, State Historic Preservation Officer, for Managing Historic Properties That May Be Affected By Issuing to Virginia Electric & Power Company, Operating as Dominion Generation, for the Continued Operation of the Roanoke Rapids and Gaston Hydropower Project in Brunswick and Mecklenburg Counties, Virginia, and Halifax, Northampton, and Warren Counties, North Carolina,” executed on July 30, 2003. In fulfilling the terms of the Programmatic Agreement, the Licensee shall consult with the Tuscarora Indian Nation. The Tuscarora Indian Nation will be included in the Programmatic Agreement at stipulations I.A.; I.B.2.; the lead sentences of II, III, and IV; III.A.; and V.A., and afforded the opportunity to participate in accordance with those stipulations.

In the event that the Programmatic Agreement is terminated, the licensee shall continue to implement the provisions of its approved Historic Properties Management Plan. The Commission reserves the right to require changes to the Historic Properties Management Plan at any time during the term of the license. If the Programmatic Agreement is terminated, the licensee shall obtain approvals from, or make notifications to, the Commission or State Historic Preservation Officer, where the Historic Properties Management Plan calls upon the licensee to do so.

Article 426. Use and Occupancy. (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 non-complying 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) non-commercial 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 other wildlife enhancements.

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: (1) 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) non-project 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: (1) 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) non-project 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 Energy Projects, 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:

(1) 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 ensure 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.

(f) The conveyance of an interest in project lands under 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 land. Lands conveyed under this article shall be excluded from 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 are filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of public lands and reservations of the United States included within the project boundary.

Article 427. Cooperative Management and Dispute Resolution. Except as expressly provided otherwise in this license, the licensee shall engage in cooperative management and dispute resolution as provided in the Settlement Agreement, General Procedures, Section 12 and relevant portions of Section 6. Wherever in the license articles reference is made to either the licensee consulting with a CMT pursuant to this article or the licensee consulting or reaching agreement with other named parties, this means that the licensee shall comply with these specified sections as applicable according to the Settlement Agreement. In reporting the results of that "consultation" to the Commission, the licensee shall document its compliance with this process and provide either the agreement reached thereby or documentation of the dispute resolution including the positions taken by the parties. Measures required as a result of consultation or dispute resolution, to the extent not previously approved by the Commission, may not be implemented without prior Commission approval.

Article 428. Expenditures. Notwithstanding the limitation on expenditures included in this license, the Commission reserves the right to require the licensee to undertake such measures as may be appropriate and reasonable to implement approved plans. Where reference is made to specific amounts in the above license articles, sums are in 2002 dollars and shall be adjusted for inflation consistent with the Settlement Agreement, page GP-16, section 13.7.

Appendix B
Technical Settlement

**ROANOKE RAPIDS AND GASTON FERC PROJECT 2009 ALTERNATIVE
LICENSING PROCEDURE TECHNICAL AGREEMENT**

Sections listed as GP are general provisions, FL are flow related, LK are lake related, FS are fish related and RC are recreation and cultural resources related.

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ARTICLE GP1 Parties to the Settlement Agreement

1.0 Purpose

This article lists parties who have entered into a settlement agreement pursuant to Rule 602 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (FERC) (18 CFR § 385.602) by and between the listed entities.

2.0 Parties

The following are parties to the settlement agreement:

- 2.1 Virginia Electric and Power Company doing business as Dominion North Carolina Power (Licensee)
- 2.2 United States Fish and Wildlife Service (USFWS)
- 2.3 National Marine Fisheries Service (NMFS)
- 2.4 North Carolina Department of Environment and Natural Resources (NCDENR)
(The divisions of NCDENR have been parties to the settlement and are referenced throughout the settlement document. Their concurrence to the settlement is represented by the signature of the NCDENR representative).
 - 2.4.1 Division of Marine Fisheries (NCDMF)
 - 2.4.2 Division of Water Quality (NCDWQ)
 - 2.4.3 Division of Water Resources (NCDWR)
 - 2.4.4 Division of Forest Resources (NCDFR)
- 2.5 North Carolina Wildlife Resources Commission (NCWRC)
- 2.6 North Carolina State Historic Preservation Office (NCSHPO)
- 2.7 Virginia Department of Historic Resources (VASHPO)
- 2.8 Virginia Department of Conservation and Recreation (VDCR)
- 2.9 Virginia Department of Environmental Quality (VDEQ)
- 2.10 Virginia Department of Game and Inland Fisheries (VDGIF)
- 2.11 The Nature Conservancy (TNC)
- 2.12 The City of Virginia Beach (VB)
- 2.13 The Regional Partnership of Local Governments (RPLG)
- 2.14 The City of Roanoke Rapids (RR)
- 2.15 Lake Gaston Association (LGA)
- 2.16 The Roanoke River Basin Association (RRBA)
- 2.17 The Carolina Canoe Club (CCC)

3.0 Parties participating in the settlement process but not signatories to the agreement

- 3.1 The US Army Corps of Engineers (USACE)

ARTICLE GP2 Glossary of Terms**1.0 Glossary of Terms**

The listed terms are definitions used throughout this agreement unless otherwise indicated in specific articles of the agreement

- 1.1 Advanced Planned Release – A planned flow release from the Roanoke Rapids Dam for the purpose of recreational paddling (canoe and kayak) for four specified weekends during the year, posted on the Licensee’s website by April 1 of each year.
- 1.2 CFS –(Cubic feet per second) - Volume of one cubic foot of water passing a given point in one second.
- 1.3 Day - The 24 hour period from midnight to midnight.
- 1.4 Diadromous Fish – Fish that live as adults in a salt water system and spawn in a fresh water system (anadromous) or fish that live as adults in fresh water and spawn in salt water (catadromous).
- 1.5 Downstream Riparian Ecosystems – Any area of terrestrial or emergent vegetation within the flood plain below the Roanoke Rapids Dam to Albemarle Sound, including sloughs, river banks and other adjacent terrestrial ecosystems influenced by the river.
- 1.6 Drought Declaration – For the purpose of this settlement agreement, a declared drought is whenever the USACE activates the Drought Advisory Committee.
- 1.7 Electrical Demand Emergency - A condition of the Licensee’s power grid that potentially would lead to reduction in voltage (brownouts) or removing alternating customers from electrical service (rolling black-outs) because demand exceeds production within the Licensee’s service area.
- 1.8 Flood Control - The controlled release of water from the USACE Kerr dam when the level in Kerr Reservoir is in or above Zone E of the guide curve.
- 1.9 Growing season - The period from 1 March through 31 October of each year.
- 1.10 IFIM – Instream Flow Incremental Methodology. A tool used during relicensing that develops a site-specific relationship between aquatic habitat for selected species and stream discharge. This is then used to evaluate amounts of habitat available over time under different flow scenarios.
- 1.11 Instantaneous Flow - The flow in cfs passing a point at a particular instant.
- 1.12 Kerr Dam (Buggs Island Dam) - The dam on the Roanoke River immediately upstream of the Gaston dam, forms Kerr Lake federally owned and operated by the USACE.
- 1.13 MG/L (milligrams per liter) – An expression of chemical concentration of matter (solid, liquid or gas) dissolved in a liquid (usually water).
- 1.14 Minimum Flow and Target Flow – Unless otherwise stated, minimum flow and target flow shall refer to the sum of the instantaneous releases made by the Licensee from Roanoke Rapids Dam.

- 1.15 MOA – Memorandum of Agreement, referred to in FL2. An agreement between the USACE, NCWRC and the Licensee to provide flows to enhance striped bass spawning habitat from April 1 through June 15.
- 1.16 MWH (megawatt hour) - A unit of measure for the production of electricity equal to 1 million watts for one hour.
- 1.17 Peaking Day – Any day when the amount of water released by the Licensee from the Roanoke Rapids Dam exceeds the daily mean of the USACE weekly declaration by 1000 cfs averaged over the day.
- 1.18 Peaking Period – Any two-hour period when the mean rate of release in cfs exceeds the hourly mean of the daily release by 2500 cfs or more, or as modified per FL3 § 2.1.5.
- 1.19 PPM (parts per million) – an expression of chemical concentration of matter (solid liquid or gas) dissolved in a liquid (usually water). One ppm = one mg/l.
- 1.20 Short-term Planned Release – A planned flow release from the Roanoke Rapids Dam for the purpose of recreational paddling (canoe or kayak) for any weekend from June 16 to October 31 when the weekly declaration is less than 6000 cfs.
- 1.21 USACE Weekly declaration - The total amount of water the USACE allocates for release in one week, plus additional water (energy) utilized by the Licensee or Progress Energy from their storage accounts, including adjustments the USACE may make during the week. The declaration may be referred to in either power (MWH) or flow (cfs) units. When compared to or used to define minimum flow or target flow, the weekly declaration shall be net of evaporation, consumptive uses and local inflows into Lake Gaston and Roanoke Rapids Lake, except that water withdrawals shall not be considered consumptive uses to the extent they are supported by the release of water from dedicated storage in Kerr Reservoir.
- 1.22 Week - The period of 7 days covered by the weekly declaration of the USACE, currently, Saturday 0000 hours through Friday 2400 hours.
- 1.23 Weekly Declaration Flood (WDFlood) – any floodplain inundation that results (or would result) from a USACE weekly declaration of flood control releases whether or not the Licensee releases peaking flows during the week.
- 1.24 Within-day Peaking – Any day with one or more peaking periods.
- 1.25 Within-week Peaking – Any week with one or more peaking days.

ARTICLE FL1 Management of Roanoke River Bypass Reach

1.0 Goals

The intent of this article is to delineate measures that will restore water flow to the bypass reach to enhance, maintain and protect fish and wildlife habitat and biological integrity in the bypass reach.

2.0 Cooperative Management

- 2.1 For the purpose of this article, the Cooperative Management Team (CMT) shall consist of the NCWRC, NCDENR, USFWS, NMFS and the Licensee, with the RPLG as an ex officio member. The NCWRC, NCDENR, USFWS, and NMFS are collectively referred to as the Agencies for the purposes of this article. The CMT is established as a forum for enhanced coordination and cooperation among the Agencies, the Licensee and the RPLG.
- 2.2 The CMT shall, within the first year after acceptance of the license, develop a plan including sound assessment methods, to determine the flow regime into the bypass reach to optimize anadromous fish spawning while recognizing the economic impact of lost generation. This plan shall include success criteria to determine if and when changes in the flow regime are to occur.

3.0 Standard Conditions

3.1 Water Source

The Licensee in conjunction with the CMT shall develop a plan for passing water into the bypass reach from the Roanoke Rapids Lake.

- 3.1.1 The plan shall be developed so as to facilitate management of downstream passage and minimize escapement of resident fish in concert with state and federal fishery management objectives for the lake fishery and the Roanoke River Basin.
- 3.1.2 Methods of passing water may include but not be limited to spillway gate valves, siphons and auxiliary hydropower turbines.
- 3.1.3 Methods of managing downstream passage and preventing resident fish escapement may include but not be limited to screening, repositioning of intake portals, light barriers, sound barriers or electrical barriers.
- 3.2 Cessation of Floodwater Releases
 - 3.2.1 The Licensee shall reduce flood flow releases at Roanoke Rapids from 35,000 cfs (or any flow greater than 5,000 cfs through the floodgates) to 25,000 cfs in consultation with the USACE. Once the flood releases through the Roanoke Rapids floodgates is reduced to 5,000 cfs, the Licensee shall reduce the flows in the bypass reach per the rates in the table FL1 – 1 below:

Table FL1 - 1

Hour	Release (cfs)
0	5,000
4	4,000
8	3,000
12	2,000
16	1,500
20	1,000

24	700
28	500
32	325

3.2.2 If flood releases occur but do not reach 5,000 cfs through the floodgates, the table above shall still be used starting at the maximum flood release.

3.3 The bypass reach flow may be temporarily modified if required by unusual circumstances upon agreement between the Licensee, NCDWQ, NCWRC and the USACE. Temporary changes will be coordinated with the other agencies of the CMT in a timely manner.

4.0 Flow Plan

Provisions for development of a flow plan shall be as follows:

4.1 Monitoring of current or baseline condition

4.1.1 The Licensee and natural resource agencies recognize the need to consider balance between power production and aquatic resource protection objectives in management of bypass reach flows. The Licensee recognizes the need to return flow to the bypass reach as soon, after acceptance of a new license by the Licensee, as possible.

4.1.2 If acceptance of the new license occurs at such a time that by consensus the CMT agrees to delay flow into the bypass reach in order to study baseline conditions, the study requirements shall be developed as below:

4.1.2.1 Specific methodologies for deriving this baseline will be agreed upon by the CMT.

4.1.2.2 Determination that sufficient data has been collected to establish the baseline conditions will be agreed upon by the CMT.

4.1.3 If the CMT agrees to delay initiation of bypass reach flows in order to perform baseline studies, and after the baseline condition is established, the Licensee shall begin to pass water into the bypass according to § 4.2

4.1.4 If the CMT determines it is best to not study baseline conditions, the Licensee shall begin to pass flow into the bypass reach within 1 week of acceptance of the new FERC license

4.2 Freshet Flows

For the life of the license, the Licensee shall provide on a periodic basis for the duration of 24 consecutive hours flow to the bypass reach of 500 cfs (freshet flow). A schedule for the flows shall be provided to the Licensee by the NCDWQ in consultation with the NCWRC. This increase in flow is an attempt to mimic periodic, non-flood flow peaks that occurred before the river was impounded.

4.2.1 The scheduling of the 500-cfs flow freshets may be on weekends in order to minimize the cost of hydropower losses.

- 4.2.2 The NCDWQ in consultation with the NCWRC shall provide an annual schedule to the Licensee by November 30 for the following year. The annual scheduling of the 500-cfs may not exceed a total of 17 days of the freshet flows.
 - 4.2.3 During cycles 2, 3, and 4, the number of freshet days may be decreased per Table FL1-2
 - 4.2.4 After the annual schedule has been provided to the Licensee, the NCDWQ in consultation with NCWRC may modify the schedule but shall give the Licensee a minimum of 10 days notice prior to modification of the 500-cfs scheduling.
 - 4.2.5 Whenever flood flows require opening of the Roanoke Rapids Dam floodgates of at least one 24-hour period and up to 21 days, this will count as one of the 500-cfs flow days. (A 22-42 day flood release would count as two freshet flow days, etc.)
 - 4.2.6 If, during a study cycle, the flow for a period of 21 days equals or exceeds 500 cfs, the number of freshet flows required for that year will be reduced by one.
 - 4.2.7 The Licensee shall provide to the NCDWQ and NCWRC by March 31 of the following year a report of the days the 500-cfs freshet flow was passed into the bypass reach.
- 4.3 Base Flow, Special Spawning Flows, and First Study Cycle
- 4.3.1 For the life of the license, the Licensee shall provide an instantaneous, minimum, year-round base flow to the bypass reach of not less than 325 cubic feet per second (cfs) or adjusted as provided per § 4.4.3. During anadromous fish spawning season (a 90 day period as determined by the CMT between March 1- June 15), special spawning flows shall be provided in accordance with Table FL1-2. The Special Anadromous Fish Spawning Flow for the bypass reach during the First Study Cycle consists of a flow of 500 cfs for a duration of 30 days during the spawning season in First Study Cycle years 3, 4, and 5. Timing of the 500 cfs flow shall be determined each spawning season by the CMT, based on expected timing of peak spawning runs for target species.
 - 4.3.1.1 Flow into the bypass reach shall be released at both the north and south ends of the dam.
 - 4.3.1.2 The Licensee shall work in cooperation with the Cooperative Management Team to determine flow allocations at the north and south ends so that the water is evenly distributed into the reach
 - 4.3.2 This base flow described in § 4.3 shall be the base flow for all study cycles during non-spring spawning flows.

4.4 Second Cycle Study

During the second 5-year period of the license, the Special Anadromous Fish Spawning Flow in the bypass reach shall be increased to 500 cfs for 90 days. (Reference Table FL1-2)

- 4.4.1 The timing of the flow increase shall be targeted to be consistent with the spring spawning flow per FL2. The CMT shall initiate the flow based on temperature or other triggers as determined by the CMT.
- 4.4.2 The 5-year study cycle may be shortened or extended by the CMT based upon data and good scientific judgment.
- 4.4.3 The CMT shall consider a reduction in the base flow during the winter months to offset energy losses resulting from the increased spawning flows, with a lower bound of 300 cfs.
- 4.4.4 At the end of the 5-year study cycle, the CMT shall determine if an additional study cycle is needed. Basis of the decision shall be data analysis and evaluation to determine if success criteria and management objectives per §§ 1.0 and 2.2 have been met.
- 4.4.5 The CMT may at the end of this cycle determine another study cycle is required or establish a bypass flow regime for the remaining life of the license.
- 4.4.6 The CMT shall consider a reduction of the 90-day increased flow period based on temperature triggers and observed spawning activity while meeting enhancement objectives.

4.5 Third study cycle (Reference Table FL1-2)

If it is determined by the CMT that additional data is needed to meet bypass reach goals and success criteria per 1.0 and 2.2, for the third 5-year period of the license the flow in the bypass reach shall be increased to 750 cfs for 90 days. Sections 4.4.1 – 4.4.6 shall apply to this study cycle.

4.6 Fourth study cycle. (Reference Table FL1 – 2)

- 4.6.1 If so determined by the CMT that additional data are needed to meet bypass goals and success criteria per 1.0 and 2.2, for the fourth 5-year period of the license the flow in the bypass reach shall be increased to 1000 cfs for 90 days. Sections 4.4.1 – 4.4.6 shall apply to this study cycle. This fourth cycle represents the maximum flow/lost generation impact to the Licensee.
- 4.6.2 During the fourth study cycle, if Licensee has constructed Phase II Fish Passage Facilities and has begun passing Adult American shad (Article FS2), the 1000 cfs flow will be reduced to 900 cfs.

Table FL1 - 2

	Cycle 1	Cycle 2	Cycle 3	Cycle 4
Duration	5 years	Up to 5 years	Up to 5 years	Up to 5 years
Base Flow	325	325	325	325
Anadromous Fish Spawning Flow*	325* 500	500	750	1000
Freshet Days	17	13	13	13
Potential 90 day winter flow	325	300	300	300
Annualized flow	333	374	436	497

* Cycle 1 Flow of 325 cfs in years 1 and 2; 500 cfs in years 3, 4, 5 for a duration of 30 days, during anadromous fish spawning season; specific dates to be determined annually by the CMT.

4.7 *Adjustments after year 30.* Upon completion of the study cycles as defined in this Article, should all members of the CMT agree that none of the tested flows (325, 500, 750 or 1000 cfs) are sufficient (using the criteria decided upon by the CMT in year one of the license) for optimizing use of the bypass reach for spawning and/or nursery purposes by anadromous species, additional studies may be conducted employing higher flows beginning 30 years after acceptance of the New License.

4.8 Unusual Flow Conditions

Floods or droughts may cause a need for the CMT to make adjustments to the study plan.

4.8.1 If, during the study cycles described in §§ 4.1 – 4.5, flood flows are in effect, the Licensee in cooperation with other CMT members may make adjustments to the study plan schedule. An example of this condition is expected prolonged flood control at 20,000 cfs. The Licensee may request an increase in the bypass flow to one of the future study cycles, i.e. release 1000 cfs during that year into the bypass.

4.8.2 If, during one of the study cycles described in §§ 4.1 - 4.5, a drought occurs, and the declaration is less than 2500 cfs (cycle 2), 2750 cfs (cycle 3) or 3000 cfs (cycle 4), the spring spawning flow in the bypass shall be adjusted to the weekly declaration minus 2000 cfs. The minimum flow in the bypass would be the base flow described in Table FL1-2 above.

4.9 Final Determination of Flow

The final anadromous fish spawning flow shall be no more than the maximum or less than the minimum flow of that studied pursuant to this Article. The base flow in the bypass reach shall be 325 cfs, with the exception of the potentially reduced flows of no less than 300 cfs during the winter months. The final anadromous fish spawning flow shall be determined by NCDWQ in consultation with the CMT following the second, third or fourth study cycle. If the CMT is unable, as described under the third and fourth

study cycles, to determine whether additional data is necessary, the flows described in the second and third study cycles shall continue until the CMT makes such determination. If the Licensee has completed the fourth study cycle or the CMT determines, as described in the third and fourth study cycles, that no additional data is necessary, the Licensee shall provide the average flow of the last two executed study cycles until the final flow is determined. The Licensee shall provide the final anadromous fish spawning flows for the remainder of the license term.

5.0 Cooperative Agreement for Monitoring Anadromous Fish Spawning

Within one year of the Licensee's acceptance of a new license, the Licensee will convene the CMT made up of parties described in § 2.0 of this article. The CMT will develop:

- 5.1 A plan to determine the flow regime into the bypass reach to optimize anadromous fish spawning while recognizing the economic impact of lost generation.
- 5.2 Monitoring protocols and data standards for each of the variables under § 4.0. These protocols and standards will be designed to test specific hypotheses developed by the CMT.
- 5.3 Mutual commitments for monitoring
- 5.4 Procedures for systematic implementation of this monitoring program, including:
 - 5.4.1 Decision making by consensus and resolution of any disputes within the CMT regarding monitoring protocols, data standards, implementation, or interpretation of monitoring results will be reached under the dispute resolutions procedures provided for in this Settlement Agreement.
 - 5.4.2 Adequate communication and coordination among and between the members of the CMT,
 - 5.4.3 Annual (or other cycles as determined by the CMT) reporting of monitoring results and analysis thereof.

6.0 Monitoring Cycle

- 6.1 The monitoring cycle will consist of five-year periods beginning when the Licensee accepts a new FERC license and lasting for the duration of the study cycles or until such time as the CMT determines that further monitoring is not necessary. Notice to FERC is required at least 60 days prior to ending the monitoring. Public notice is also required at this time.
- 6.2 Prior to the first year of each monitoring cycle, the Licensee will report to FERC on any modifications implemented under § 4.0.
- 6.3 If the CMT so determines, the monitoring cycle may be extended or shortened in whole year increments.

7.0 Monitoring for Riverine Species

7.1 The Licensee shall monitor biota within the bypass reach for the purposes of determining the species composition and relative abundance of resident fishes at 5-year intervals and mollusks at 7 to 10 year intervals.

7.2 Within the first year of the license, the CMT shall develop an annual monitoring plan to evaluate the effectiveness of the bypass reach in accomplishing the goals and objectives for anadromous species. The CMT will establish specific methodologies and a schedule for monitoring.

7.3 The Licensee in consultation with the CMT shall prepare a report at the conclusion of each 5-year interval detailing the methodologies and results of the monitoring program. The report will be distributed to all interested natural resource agencies.

8.0 Funding for Monitoring

The funding for studying/monitoring the bypass shall be funded as follows:

8.1 The Licensee shall fully fund the resident fish and mollusk studies, not to exceed \$20,000 for resident fish and \$10,000 for mollusk per survey.

8.2 The Licensee shall fully fund the anadromous fish studies up to \$30,000 per year. Any study funds required above that amount will require an equal funding by (1) federal and (2) state resource agencies. After that threshold is met, additional funding shall be co-funded at one third each shares.

9.0 Implementation.

9.1 The Licensee shall temporarily use north and south spillway gates to provide flow releases into the bypass reach until a permanent flow release plan is developed. During the temporary use of the spillway gates, the gates shall be set such that the flow will be 325-350 cfs or 500 cfs, as applicable, at the mid-point of the power pool normal operating range (129.5 feet MSL).

9.2 Within nine months of license acceptance, after consultation with the CMT, the Licensee shall file with the FERC for approval, a final plan to pass water into the bypass reach via a permanent means or structure. The plan shall not be implemented until the Licensee is notified that the plan is approved. Upon FERC approval, the Licensee shall implement the flow release plan including any changes required by the FERC.

ARTICLE FL2 Target Flow Releases from Roanoke Rapids Dam

1.0 Goals

This article is intended to define target flow releases from Roanoke Rapids Dam to protect the water quality standards and enhance the biological integrity of the Roanoke River downstream of the dam.

2.0 Target Flows and Minimum Flows

- 2.1 For the period of December 1 through January 15, minimum flows shall be as follows:
 - 2.1.1 If the weekly declaration is < 6000 cfs, minimum flow is 2000 cfs or the daily mean of the weekly declaration, whichever is less.
 - 2.1.2 If the weekly declaration is ≥ 6000 cfs, minimum flow is 2500 cfs.
- 2.2 For the period of January 15 through February 28 (or 29), minimum flows shall be as follows:
 - 2.2.1 If the weekly declaration is < 6000 cfs, minimum flow shall be 2500 cfs or the daily mean of the weekly declaration, whichever is less.
 - 2.2.2 If the weekly declaration is ≥ 6000 cfs, minimum flows shall be 3000 cfs.
- 2.3 For the period of March 1 to March 31, the target flows shall be:
 - 2.3.1 The licensee shall release from Roanoke Rapids the daily mean of the weekly declaration from Kerr Reservoir with the exception of paragraphs 2.3.2, 3.0 and 4.0.
 - 2.3.2 The Licensee during March shall be able to peak on 5 days of its choosing if the weekly USACE declaration exceeds 3,500 cfs.
 - 2.3.3 Only two peak days are allowed March 25 to March 31.
 - 2.3.4 During the weeks the Licensee chooses to peak, the minimum flow for that week shall be 3,500 cfs.
 - 2.3.5 Peaking will occur for no more than 3 consecutive days, no more than 3 days in one week.
 - 2.3.6 The 5 days of peaking shall be limited to 2 weeks of the Licensee's choosing.
 - 2.3.7 On peak days, the ramp up shall be as follows:
 - 2.3.7.1 Ramp from minimum flow to minimum flow plus 5000 cfs
 - 2.3.7.2 Hold for one hour
 - 2.3.7.3 Ramp up according to Licensee peaking needs
 - 2.3.8 On peak days, the ramp down shall be as follows
 - 2.3.8.1 Ramp from peak down to minimum flow plus 5000 cfs
 - 2.3.8.2 Hold for one hour
 - 2.3.8.3 Ramp down to minimum flow
- 2.4 For the period of April 1 through June 15:
 - 2.4.1 The flows during this timeframe shall be determined by consultation of the USACE, the NCWRC and the Licensee.
 - 2.4.1.1 Flow targets shall be guided by using the 1989 (or current) MOA and the IFIM targets developed during the relicensing discussions.
 - 2.4.1.2 The agreed to flows shall include target and maximum flows as well as minimum flows.
 - 2.4.2 During this timeframe, the Licensee shall not load follow at the Roanoke Rapids Dam.

- 2.4.3 When targets set in 2.4.1.1 cannot be met, daily instantaneous flows shall be the daily mean of the weekly declaration.
- 2.4.4 Changes (increases or decreases) in flow from one declaration to the next shall not exceed 5000 cfs / hour.
- 2.5 For the period of June 16 through June 30, minimum flow shall be 2800 cfs or the daily mean of the weekly declaration, whichever is less.
- 2.6 For the period of July 1 through September 15 the minimum flow shall be 2000 cfs.
- 2.7 For the period of September 16 through November 15, the minimum flow shall be 1500 cfs.
- 2.8 For the period of November 16 through November 30 the minimum flow shall be 2000 cfs.

Table FL2 - 1

Minimum and Target Flow Releases from Roanoke Rapids Dam		
Timeframe	Condition	Minimum Flow1
Jan. 1 – 15	Declaration <6000 cfs	2000 cfs
	Declaration ≥6000 cfs	2500 cfs
Jan. 15 - Feb. 28/29	Declaration <6000 cfs	2500 cfs
	Declaration ≥6000 cfs	3000 cfs
March	Declaration ≤3500 cfs	minimum flow = declaration
	Declaration >3500 cfs	Minimum flow = 3500 for peaking days
		5 peaking days during month
		3 peaking day limit per week
		3 consecutive peaking day limit
		Can only peak in two of the weeks
	Ramp up	Ramp up from min. by 5000 cfs hold for 1 hour, then go to full load
	Ramp down	Ramp down to min. flow + 5000 cfs, hold for one hour then go to minimum flow.
April 1 - June 15	All conditions	Flow = mean of weekly declaration, no peaking
	Ramp	Change from one to next weekly declaration cannot exceed 5000 cfs per hour

June 16 - June 30	All conditions	2800 cfs
July 1 - September 15	All conditions	2000 cfs
Sept. 16 - Nov. 15	All conditions	1500 cfs
Nov. 16 - Nov. 30	All conditions	2000 cfs
Dec. 1 – Dec. 31	Declaration <6000 cfs	2000 cfs
	Declaration \geq 6000 cfs	2500 cfs

¹ For drought condition, see § 4 below.

3.0 Flood Control

It is understood that any agreement reached in this article must be incorporated into the USACE Kerr Dam operating policies. The USACE retains full authority to support its primary flood control mission.

4.0 Minimum Flows – Drought Declaration

- 4.1 The Licensee will participate in the USACE Drought Advisory Committee (refer to article FL6)
- 4.2 When the USACE declares a drought, the Licensee shall maintain the following drought minimum flows unless otherwise directed by the USACE in consultation with the NCDWQ and NCWRC:

TABLE FL2-2

January – August	2000 cfs
September - November	1500 cfs
December	2000 cfs

5.0 Implementation

The licensee will implement this new flow regime within 30 days of acceptance of a new FERC license.

ARTICLE FL3 Downstream Ecological Impacts of Within-day Peaking

1.0 General

1.1 Goals

This article is intended to assess and, if necessary, reduce the contribution of the licensee's within-day peaking operations to (1) erosion of the banks of the Roanoke River downstream of Roanoke Rapids Dam and (2) potential adverse effects on fish and benthic macroinvertebrates downstream. Such reduction is intended to contribute to recruitment and survival of flora and fauna in numbers and locations adequate to sustain or restore the biological integrity of the bank and instream ecosystems.

1.2 Cooperative Management

For the purpose of this article, the Cooperative Management Team (CMT) shall consist of the NCWRC, NCDENR, USFWS, NMFS, TNC and the Licensee, with the RPLG as an ex officio member.

2.0 Licensee Release Restrictions

During the period outside of April 1 through June 15, the Licensee shall make releases from Roanoke Rapids dam as follows:

2.1 At least one monitoring cycle (as described in § 6.0) will have been completed before any changes to within-day peaking operation will be investigated. If the CMT (as described in § 5.0) finds that scientific data establishes a link between the Licensee's unmodified within-day peaking and [a] bank erosion, and/or [b] negative effects on any of the species and communities listed in § 4.0, then the CMT shall develop an approach to address the effects of within-day peaking that modifies one of the factors listed in 2.1.1 through 2.1.6. Seasonal variations may also be incorporated by the CMT.

2.1.1 maximum peaking flow

2.1.2 difference between base flow and peak flow on peaking days

2.1.3 ramping rates

2.1.4 duration of base flow (in hours) between peaking releases

2.1.5 modification of glossary item 1.18 (peaking period)

2.1.6 some other modification that the CMT agrees may reduce adverse impacts of within-day peaking on aquatic biota and/or stream bank stability.

2.2 Following each subsequent monitoring cycle during the period of the license: If the CMT finds that scientific data continue to support a link between the Licensee's a) within-day peaking (as modified) and a) bank erosion, and/or b) negative effects on the aquatic species and communities listed in § 4.0, then the CMT will choose an additional step change to further reduce effects of the project's within-day peaking.

- 2.3 Each step taken according to §§ 2.1 through 2.2 must reduce the latitude available to the licensee for within-day peaking by a proportional amount equivalent to 5 divided by the period of the license in years. The exact means for calculating the proportionality of steps will be determined by the CMT.
- 2.4 If any operational changes subject to §§ 2.1 through 2.2 of this article would conflict with release requirements subject to articles FL2, FL5 and FL7, then the flow-related conditions of FL2, FL5 or FL7 would take precedence.
- 2.5 The Licensee shall provide public notice 60 days prior to any changes in flow that result from the requirements above.

3.0 Limitations on Licensee Responsibilities

- 3.1 Any additional ramping requirements beyond those described in article FL2 will be implemented for the declining limb of the peaking event (ramp down), and not the ascending limb (ramp up). The ramp down rate will not be slower than 2000 cfs per hour.
- 3.2 The Licensee is not required by this agreement to make modifications to the USACE weekly declaration.
- 3.3 The number of peaking days in a year will not be reduced below the frequency of unregulated high flow days, on a monthly or seasonal basis.
- 3.4 The minimum number of days experiencing within-day peaking will not be reduced below 40 days per year.

4.0 Species, Communities, and Erosion Variables to be Monitored

- 4.1 The monitoring program established under § 6.0 initially will address the following:
 - 4.1.1 Animal species: Fish, benthic macroinvertebrates
 - 4.1.2 Bank erosion (to use data assembled under the provisions of FL4, § 4.0, and augmented as necessary to more closely evaluate the impacts of within-day peaking on bank erosion)
- 4.2 By mutual agreement of the CMT, the lists of species, community types, and erosion variables to be monitored may be revised prior to the beginning of any new monitoring cycle.

5.0 Cooperative Agreement for Monitoring

Within one year of the issuance of a new license, the Licensee will enter into an agreement with downstream ecosystem interests to form a CMT. The CMT will develop:

- 5.1 A plan to meet objectives per 1.1 for each of the selected species and communities listed in § 4.0. Bank erosion will be assessed subject to objectives developed in FL4.

- 5.2 Concurrent with development of the plan under 5.1 shall be the development of success or decision criteria. This shall clearly define the criteria needed to determine whether the next monitoring phase is required.
- 5.3 Monitoring protocols and data standards for the species, communities, and erosion variables under § 4.0. These protocols and standards will be designed to test specific hypotheses concerning whether or how the licensee's within-day peaking operation causes or contributes to adverse impacts on any of these species, communities, or erosion variables. Initial monitoring protocols and data standards for bank erosion will be developed subject to FL4. However, these may be modified if initial data review indicates the need to focus more closely on the contribution of within-day peaking to bank erosion.
- 5.4 Mutual commitments for monitoring species, communities, and bank erosion under § 4.0. The Licensee's responsibility under § 5.0 will not exceed \$30,000 dollars annually (stated in adjusted 2002 dollars). Any portion of the \$30,000 not utilized shall be carried forward to the Licensee's future annual budget cycles and shall be in addition to the \$30,000 allocated for those cycles.
- 5.5 Procedures for systematic implementation of this monitoring program, including: [a] decision making by consensus, [b] adequate communication and coordination among and between the members of the CMT, [c] annual reporting (or as otherwise deemed appropriate by the CMT) of monitoring results and analysis thereof, and [d] resolution of any disputes regarding management objectives, monitoring protocols, data standards, interpretation of monitoring results, or implementation of changes suggested by monitoring results.
- 5.6 An appropriate procedure for amending the cooperative agreement by consensus of all parties within the constraints of this article.
- 6.0 Monitoring Cycle
- 6.1 The monitoring cycles will consist of five-year periods beginning when the Licensee accepts a new FERC license and lasting for the duration of the license, or until such time as the CMT determines that further monitoring is not necessary. Notice to FERC is required at least 60 days prior to ending the monitoring. Public notice is also required at this time.
- 6.2 Prior to the first year of each monitoring cycle, the Licensee will report to FERC on any flow modifications implemented under §§ 2.1-2.3.
- 6.3 In order to allow reasonable time to establish the agreement, protocols, and procedures in 5.0, monitoring is not required to begin during the first monitoring cycle until the second year.
- 6.4 If the CMT so determines, any monitoring cycle may be extended or shortened in whole year increments.

ARTICLE FL4 Downstream Ecological Impacts of Within-week Peaking**1.0 Goals**

- 1.1 This article is intended to further assess, and if agreed necessary, to reduce the licensee's contribution to growing season floods in the downstream riparian ecosystems of the Roanoke River below Roanoke Rapids Dam. Such reduction is intended to contribute to recruitment and survival of flora and fauna in numbers and locations adequate to sustain these ecosystems.
- 1.2 This article is intended to assess, and if agreed necessary, to reduce the licensee's contribution to erosion of and/or suppression of vegetation on the banks of the Roanoke River below Roanoke Rapids Dam. Such reduction is intended to contribute to recruitment and survival of flora and fauna in numbers and locations adequate to sustain bank ecosystems and to provide forage and cover for fish and other aquatic organisms when the banks are partially or wholly inundated.

2.0 Licensee Release Restrictions

During the growing season, the Licensee shall make releases from Roanoke Rapids under the following conditions:

- 2.1 If, after the first monitoring cycle(s) described in § 6.0, the Cooperative Management Team (CMT) described in § 5.0, through collection of scientific data, establishes a link between the Licensee's rescheduling of the USACE weekly declaration and adverse effects on any of the species and communities listed in § 4.0, the Licensee shall, at its own discretion after reviewing the advice of the CMT, either:
 - 2.1.1 reduce the maximum number of peaking days per week
 - 2.1.2 reduce the maximum number of consecutive peaking days in a week
 - 2.1.3 establish a higher minimum flow for non-peaking days or
 - 2.1.4 by some other systematic means modify its redistribution within the week (i.e., between days) of the USACE weekly declaration.
- 2.2 Following each subsequent monitoring cycle during the period of the license, if the CMT finds that scientific data continue to support a causal link between the Licensee's rescheduling of the USACE weekly declaration and adverse effects on the species and communities listed in § 6, then the Licensee, after reviewing the advice of the CMT, will choose, from the list in 2.1, which additional step to take to further modify the project's redistribution within the week of the USACE weekly declaration.
- 2.3 If § 2.1 requires modification of the licensee's rescheduling of the USACE weekly declaration, the licensee will reduce its net effect on the USACE declaration by half. Thereafter, each step taken according to § 2.2 will either reduce or increase the licensee's rescheduling of the USACE weekly declaration by half of the difference implemented in the previous step. The exact means for calculating the

proportionality of steps will be determined by the CMT. While it is theoretically possible that the licensee will have to adjust its operations after every monitoring cycle, it is highly likely that this strategy of bifurcation will result in optimization for the purposes of this article after 3-5 monitoring cycles.

- 2.4 §§ 2.1-2.2 will be superceded by spawning and in-stream habitat releases prescribed in license articles FL1 and FL2 when the conditions conflict.
- 2.5 The Licensee shall provide public notice 60 days prior to any changes in flow that result from the requirements above.

3.0 Limitations on Licensee Responsibilities

- 3.1 The Licensee's flexibility for scheduling releases during a peaking day is not constrained by this article.
- 3.2 The Licensee is not required by this agreement to make modifications to the USACE weekly declaration.
- 3.3 The maximum operational duty of the Licensee under this article is reached when the daily flow through the Roanoke Rapids Dam equals the USACE mean daily declaration.

4.0 Species, Communities, and Erosion Variables to be Monitored

- 4.1 The monitoring program established under § 6.0 initially will address the following:
 - 4.1.1 Seedlings of the following tree species: *Acer rubrum* (red maple), *Carya aquatica* (water hickory), *Fraxinus pennsylvanica* (green ash), *Liquidambar styraciflua* (sweet gum), *Nyssa aquatica* (tupelo gum), *Nyssa biflora* (swamp black gum), *Quercus laurifolia* (laurel oak), *Quercus lyrata* (overcup oak), *Quercus michauxii* (swamp chestnut oak), *Quercus pagoda* (cherrybark oak), *Taxodium distichum* (bald cypress), *Ulmus americana* (American elm)
 - 4.1.2 Animal species: Macro-lepidoptera (large moths and butterflies including forest tent caterpillar), *Cambarus* spp. (terrestrial crayfish), Benthic macro-invertebrates in tributary streams
 - 4.1.3 Natural communities (downstream riparian ecosystem types) to be monitored in the last growing season of every fourth monitoring cycle: Forested Peatlands (Atlantic white cedar, bay forest, mixed bay - pine forest, swamp blackgum, bay - swamp blackgum, mixed deciduous peatland); Swamp Forests (tupelo - cypress); and bottomland hardwoods (mixed swamp forests (maple - oak - tupelo flats), maple - green ash bottomland forests, sweetgum bottomland forests, oak dominated low ridges and flats, high levee bottomland forests, mixed mesic bottomland forests).
 - 4.1.4 Bank vegetation (herbaceous and woody cover)

- 4.1.5 Bank erosion (to include both scouring and mass wasting – specific variables to be determined by the CMT)
- 4.2 By mutual agreement of the CMT, the lists of species, community types, and erosion variables to be monitored may be modified prior to the beginning of any new monitoring cycle.

5.0 Cooperative Agreement for Monitoring

Within one year of the issuance of a new license, the Licensee will enter into an agreement with the NCWRC, NCDENR, USFWS, NMFS and TNC to form a CMT. The RPLG shall be an ex officio member of the CMT. The CMT will develop:

- 5.1 A plan to meet objectives per 1.1 for each of the selected species and communities and erosion variables in § 4.0.
- 5.2 Monitoring protocols and data standards for the species and communities and erosion variables under § 4.0. These protocols and standards will be designed to test specific hypotheses concerning whether or how the licensee’s rescheduling of the USACE weekly declaration causes or contributes to adverse impacts on any of these species or communities or erosion variables and to further test the proportionate impacts of such rescheduling and the USACE water control plan (including the weekly declaration as well as flood control operation).
- 5.3 Procedures for selecting lands on which to monitor the species and communities under § 4.0, and for locating water-level gages in the floodplain as needed to implement §§ 2.1- 2.3.
- 5.4 Mutual commitments for monitoring species, communities, and bank erosion under § 4.0. The Licensee’s responsibility under this § 5 will not exceed \$125,000 the first year (\$100,000 and up to an additional \$25,000 if matched by downstream conservation organizations) and \$75,000 the subsequent years, (\$50,000 and up to an additional \$25,000 if matched by downstream conservation organizations). Any funds not used in a designated year shall be carried over to future budget cycles and shall be in addition to the funds allocated for those budget cycles. The CMT may choose to accept contributions of in-kind services to meet member obligations.

Cost Share Table FL4-1

Licensee Year 1 (required)	\$100,000
Licensee Additional years (required)	\$50,000
Licensee Match (conditioned on agency match)	\$25,000
Agency Match Year 1 and Additional Years (optional)	\$25,000
Total Potentially Available Year 1	\$150,000
Total Potentially Available Additional Years	\$100,000

- 5.5 Procedures for systematic implementation of this monitoring program, including: [a] decision making by consensus, [b] adequate communication and coordination among and between the members of the CMT, [c] annual reporting of monitoring results and analysis thereof, and [d] resolution of any disputes within the CMT regarding monitoring protocols, data standards, implementation, or interpretation of monitoring results.
- 5.6 An appropriate procedure for amending the cooperative agreement by consensus of all parties within the constraints of this article.
- 5.7 In the event there is a conflict between or among CMT decisions, the Licensee may in advance of invoking dispute resolution convene a consultation between such teams.
- 5.8 CMT will provide notice of its meetings and written work products to any Party not designated in § 5.0 who requests such notice. Such a Party may participate in the CMT, excluding the consensus decision making described in § 5.5(A). Within a year of the Licensee's acceptance of a new license, the CMT will adopt appropriate procedures for public participation in its meetings.
- 6.0 Monitoring Cycle
- 6.1 The monitoring cycle will consist of five-year periods beginning when the Licensee accepts a new FERC license and lasting for the duration of the license or until such time as the CMT determines that further monitoring is not necessary. Notice to FERC is required at least 60 days prior to ending the monitoring. Public notice is also required at this time.
- 6.2 Prior to the first year of each monitoring cycle, the Licensee will report to FERC on any flow modifications implemented under §§ 2.1-2.3.
- 6.3 In order to allow reasonable time to establish the agreement protocols, and procedures in 6.0, monitoring is not required to begin during the first monitoring cycle until the second year.
- 6.4 If the CMT so determines, the monitoring cycle may be extended or shortened in whole year increments.

ARTICLE FL5 Flood Control Operation

1.0 Goals

This article is intended to minimize the effect of the Licensee's operation of the project on downstream ecological communities following USACE prescribed flood control releases.

2.0 Cooperation with USACE

The Licensee shall work in conjunction with the USACE to gradually reduce flows in the bypass reach per the schedule described in Article FL1 of this agreement.

3.0 Hot Weather Flow Reduction

The licensee shall work in conjunction with the USACE to reduce flows in the mainstem river gradually during the months of May through September to minimize the effect of hypoxic water inflow. Upon agreement with the USACE or until the USACE 216 study indicates a different step-down schedule should be followed, the licensee will work with the USACE to implement the following step-down schedule from a 20,000-cfs flow:

Table FL5-1

Hour	Flow (CFS)
0	17,000
8	14,000
16	12,000
20	11,000
24	10,500
28	10,000
32	9,500
36	9,000

- 3.1 Table FL 5.1 represents a maximum flow reduction schedule. A slower step-down schedule (one that gets to the 9000 cfs flow over a longer period of time) may be mutually agreed to by the NCDWQ, the USACE and the Licensee on a case by case basis.
- 3.2 During the time-frame needed to execute the flow reduction schedule, the licensee would not engage in load-following operations.

4.0 Implementation

The Licensee will implement the step-down flow schedule at the time when the Licensee has accepted a new FERC license. At the time the USACE 216 study is completed and the Licensee shall operate in a manner consistent with the USACE flood control operations.

ARTICLE FL6 Drought Response

1.0 General

1.1 Goals

This article is intended to clarify and minimize the impacts of the Licensee's operation and non-project consumptive uses of project waters during unusual drought conditions.

1.2 Potential impacts

During the life of the license, there may be drought conditions that reduce the flow of water from the USACE John H. Kerr hydroelectric project into Lake Gaston. These

conditions have the potential to affect the operation of FERC project 2009 in a number of ways including but not limited to:

- 1.2.1 Reduction in peaking capability
- 1.2.2 Reduction in minimum flow release from Roanoke Rapids Dam to the lower Roanoke River
- 1.2.3. Reduction in lake water levels in both Lake Gaston and Roanoke Rapids Lake
- 1.2.4 Reduction of available water for withdrawal from the lakes for public water consumption.

2.0 Cooperation with USACE

- 2.1 The project shall be operated in a manner that fully cooperates with the USACE Wilmington District Office in times of drought as declared by the USACE.
- 2.2 The Licensee shall provide one representative as required by the USACE to participate in the Drought Management Committee when the USACE “drought indicators” and accompanying operation rules require the USACE’s implementation of the drought management plan. The Licensee agrees to comply with the action plan developed by said committee and implement required operational controls to comply with said plan to the extent consistent with the provisions of its FERC license; provided, however, that drought management measures for consumptive uses shall be determined as set forth in § 3 below.

3.0 Consumptive Non-Project Uses of Project Waters.

- 3.1 The following definitions apply in this article:
 - 3.1.1 A "consumptive use" is any use of water from the project unless an equal volume of water is returned to the project by the same entity.
 - 3.1.2 A "large consumptive use" is any consumptive use for which at least two million gallons per day of water ("mgd") is not returned to the project.
 - 3.1.3 A " public water system" is a public water system within the meaning of 42 U.S.C. § 300f (2003)
 - 3.1.4 The "SE Va. Project" is the water withdrawal project first approved by the Federal Energy Regulatory Commission on July 26, 1995.
 - 3.1.5 "Critical drought" means a drought in the Roanoke River Basin of at least the severity of a drought with a recurrence interval of once every twenty years.
 - 3.1.6 "Owner or operator" of a public water system may include more than one entity. For example, each owner or operator in each jurisdiction of a public water system that distributes water in several jurisdictions is an owner or operator. Virginia Beach represents that it is an owner or operator of a public water system.

- 3.1.7 "SE Va. Users" shall mean Virginia Beach, Chesapeake and other owners or operators of public water systems in Southeastern Virginia that receive and use water from the SE Va. Project, or resell or supply such water to others. It does not mean a community, such as Norfolk currently, that may wheel or treat Lake Gaston water through its system, but does not use such water for its own water supply or for sale or supply to others.
- 3.1.8 "Southeastern Virginia" shall mean Virginia Beach, Chesapeake, Norfolk, Portsmouth, Suffolk, Isle of Wight County, Southampton County and Franklin.
- 3.2 Critical droughts shall be identified and conservation and/or other measures that have the goal of reducing demand pressure on the Roanoke River and promoting the equitable sharing of the resource shall be formulated and implemented during such times as specified in this section.
- 3.2.1 A Consumptive Use Drought Management Committee ("Committee") is established and consists of NCDENR, VDEQ, Virginia Beach, and the Licensee. The Committee shall notify the USACE that the USACE is invited to be a member of the Committee and upon acceptance, the USACE will be a member of the Committee. At such time as Chesapeake begins to receive water from the SE Va. Project, the Committee shall notify Chesapeake that Chesapeake is invited to be a member of the Committee and upon acceptance, Chesapeake will be a member of the Committee. Upon initiation of any new large consumptive uses, the Committee shall notify the owner or operator of such use that a representative of the use may be a member of the Committee and upon acceptance, one representative of the use shall be a member of the Committee. By consensus of the members of the Committee, the Committee may defer any or all of its obligations under this § 3.2 to another existing entity. The Committee shall promptly publicize all of its actions, meetings and meeting minutes.
- 3.2.2 At the request of any member of the Committee, the Committee shall convene to discuss drought conditions, review available information on drought and water resource conditions, and deliberate to determine measures to be taken to respond to any drought.
- 3.2.3 Following consultation with the Committee, NCDENR and VDEQ may jointly determine and declare that the Roanoke River Basin is experiencing a critical drought. After a critical drought is declared, SE Va. Users shall take such of the following water conservation measures as NCDENR may specify so long as such User is using any SE Va. Project water, and provided that such measures must be applied equally to all such users that are using SE Va. Project water. If NCDENR believes that a critical drought exists, but VDEQ does not agree, then NCDENR may unilaterally declare that a critical drought exists, but in such event, NCDENR may specify only

such of the following water conservation measures as are not more stringent than the least stringent of those required on any public water system in North Carolina that at the time of the drought uses an out-of-basin transfer from the Roanoke River Basin. For the purposes of this provision and the similar limitations in §§ 3.2.5 and 3.2.7, any part of a public water system in North Carolina that discharges water back into the Roanoke River Basin shall not be considered to be using an out-of-basin transfer.

- 3.2.3.1 Use of all existing water supply sources within their jurisdiction to the maximum extent practicable;
- 3.2.3.2 Use of all alternative sources of water other than water received from the SE Va. Project, within or without their jurisdiction, that can be obtained by them consistent with good utility system practice and at a total cost (including permitting, construction, treatment and delivery of such alternative supplies plus costs of using project water that cannot be avoided by not using project water) not greater than 20% more than the cost of using project water.
- 3.2.3.3 Use of all emergency and conjunctive use wells within or without their jurisdiction to the extent that such use (i) is consistent with good utility system practice and with applicable state and local permits and approvals, and (ii) is not economically impractical; and
- 3.2.3.4 Implementation of other conservation measures to reduce water demands. For purposes of this paragraph, "other conservation measures" means requests that citizens voluntarily conserve water; restrictions on watering lawns and other vegetation, washing vehicles, sidewalks, streets and other exterior areas; restrictions on operating ornamental fountains, refilling swimming pools and nongovernmental use of fire hydrants; and prohibitions on serving water in restaurants except on request. Such other conservation measures shall be implemented in the manner described in the Ordinance adopted by the Virginia Beach City Council on February 11, 1992, or as amended, provided that any such amendments are substantively equivalent and achieve the same goals and objectives.

Each SE Va. User shall consult with the Committee when implementing these measures. The Committee shall resolve any disputes regarding implementation, such as regarding "good utility system practice" and the substantive equivalency of amendments to the ordinance under paragraph (3.2.3.4).

3.2.4 Any SE Va. user that disagrees with a determination by NCDENR and

VDEQ, or by NCDENR unilaterally, that a critical drought exists, may request the District Engineer of the USACE, Wilmington District to determine whether a critical drought exists. The parties shall abide by the decision of the District Engineer.

- 3.2.5 NCDENR and VDEQ jointly will determine when hydrologic and meteorological conditions have improved sufficiently that some or all of the water conservation measures taken pursuant to § 3.2.3 should be modified, suspended or rescinded because they no longer are necessary to accomplish their goals as set forth above. Considering the same factors, NCDENR and VDEQ will also determine when a critical drought has ended. Any § 3.2.3 conservation measures that are still in place at the time it is determined that a critical drought has ended are concurrently rescinded. If NCDENR and VDEQ do not agree on the determinations to be made under this section, such determinations may be made by NCDENR unilaterally, but in that event, no conservation measures shall be required of SE Va. Users that are more stringent than the least stringent of those required of any public water system in North Carolina that at the time of the drought uses an out-of-basin transfer from the Roanoke River Basin. Any SE Va. User that disagrees with the determination of NCDENR and VDEQ, or NCDENR unilaterally, to alter the status of any § 3.2.3 water conservation measures, or to declare an end to a critical drought, may request the District Engineer to make such determination. All § 3.2.3 water conservation measures shall remain in effect until either NCDENR and VDEQ, NCDENR unilaterally, or the District Engineer has determined that they should be modified, suspended, or rescinded, whichever occurs first. At such time as it is determined that conservation measures shall be modified or suspended, but not rescinded, NCDENR, in consultation with VDEQ, shall specify new conservation measures and the terms of any suspension of measures.
 - 3.2.6 The Committee may develop an objective drought index to assist in the determination of critical drought periods.
 - 3.2.7 This Agreement shall not be interpreted or implemented to require restrictions on SE Va. Users that would be more stringent than the least stringent of those required on any public water system in North Carolina that uses an out-of-basin transfer from the Roanoke River Basin that is initiated or expanded after the issuance of the new license; furthermore, during critical droughts all such public water systems (i.e. all SE Va. Users and all new or expanded public water systems in North Carolina that use out-of-basin transfers from the Roanoke River Basin) shall share the resource equitably, including addressing equitably any significant adverse effects that such public water systems cause or to which they contribute.
- 3.3 Non-drought conservation measures.

- 3.3.1 All SE Va. Users shall make available for inspection by NCDENR and VDEQ at a reasonable time and place upon written request the following information:
 - 3.3.1.1 Records of water withdrawals from the project; and
 - 3.3.1.2 Records concerning maintenance of water conservation programs. In lieu of transmitting records of water withdrawals to NCDENR or VDEQ and after notice to NCDENR and VDEQ of the termination of transmitting of such records, records maybe posted regularly on a public web site and updated no less frequently than once monthly.
- 3.3.2 All SE Va. Users shall maintain an active and ongoing conservation program, including education, leak detection, water system repairs, conservation pricing, retrofit to low flow fixtures, and like measures; periodically review new conservation and water supply technologies that become commercially available; and, consistent with and subject to good water utility system practices, not waste or imprudently use water.
- 3.3.3 All SE Va. Users shall encourage regional water supply conservation programs.
- 3.4 The maximum amount of water that can be withdrawn from the Roanoke River Basin through the SE Va. Project for Southeastern Virginia is 60 mgd.
- 3.5 The purpose of the SE Va. Project is to supplement the preexisting water supplies of Southeastern Virginia. Accordingly, without the prior written consent of North Carolina: (i) SE Va. Users shall not resell or supply water withdrawn via the SE Va. Project or any other water to any entity outside Southeastern Virginia, except in response to a bona fide emergency in communities along the route of the pipeline of the SE Va. Project; (ii) Virginia Beach will not contract or otherwise commit to supply more additional water to Norfolk's water system above monthly demand than is now required under § 2.4 of the Amended and Restated Water Services Contract between Virginia Beach and Norfolk as that contract exists on February 26, 2003 ("Norfolk Contract"); and (iii) Virginia Beach, Chesapeake and SE Va. Users shall not operate their systems, including the SE Va. Project, in a manner that provides SE Va. Project water for use by, or uses SE Va. Project water to increase the safe yield of, water systems operated by other communities in Southeastern Virginia unless such other communities agree to be bound by this FL6 § 3, as provided in § 3.8. Within sixty days of a written request by NCDENR, Virginia Beach will provide to NCDENR records demonstrating the amount of project water used in any Southeastern Virginia jurisdiction. By entering into this Agreement, North Carolina does not waive any rights regarding or radify the Norfolk Contract.
- 3.6 Consistent with the purpose of the SE Va. Project to supplement the preexisting water supplies of southeastern Virginia, Virginia Beach and Chesapeake and other

- SE Va. Users shall not abandon, seek the abandonment, or interfere with the development of any water supplies which could be used with or in lieu of water from the SE Va. Project, except for legitimate and unforeseen reasons that would make such a supply impossible or impractical even if water from the SE Va. Project were not available.
- 3.7 During periods when a flow regime adopted by the USACE, the Licensee and NCWRC for striped bass spawning flow augmentation is in effect, Virginia Beach shall at the request of NCWRC make its water storage in Kerr Reservoir available to the Corps to be used in consultation with NCWRC, so long as it is available, for striped bass spawning flow augmentation to offset withdrawals by the SE Va. Project when river flows are below the applicable limit of the flow regime.
- 3.8 No party shall facilitate any entity being or becoming a SE Va. User unless that entity agrees in writing to be bound by this article FL6 § 3 at such time as that entity begins to use, or sell or supply to others, water from the SE Va. Project. No entity that intends to receive water from the SE Va. Project shall be required to comply with any provisions of this article FL6 § 3 applicable to it until such time as it begins to receive water from the SE Va. Project.
- 3.9 The agreements, commitments and obligations made and accepted by Virginia Beach, Chesapeake and other SE Va. Users in this article FL6 § 3, shall be enforceable only by North Carolina, NCDENR or other appropriate agency of North Carolina.
- 3.10 VDEQ's agreement to this article FL6 does not relieve Virginia Beach, Chesapeake or any SE Va. Users of any obligations they may have to VDEQ or otherwise under Virginia law.
- 3.11 NCDENR and VDEQ recognize that the Roanoke River is a shared resource that should be cooperatively managed by North Carolina and Virginia. NCDENR and VDEQ also recognize that the agreements, commitments and obligations undertaken by Virginia Beach, Chesapeake and other SE Va. Users in this article FL6 § 3 for the purpose of mitigating the impacts of SE Va. Project withdrawals during droughts are appropriate and equitable; and NCDENR and VDEQ agree that it would also be equitable and in the interests of sound management of the resource that similar measures be considered by each state in connection with future interbasin transfers from the project. Accordingly, NCDENR and DEQ agree that they will participate in the Committee and take the other actions described in this article FL6 and, in addition, that: (i) they will forward to each other any applications received or reviewed by either of them (whether the application is made to them or to other local, state or federal agencies) for permits, licenses or other authorizations to withdraw water for interbasin transfers from the Roanoke Basin in excess of 2 mgd, sufficiently in advance of any action on such applications that they may have time to submit comments on the application to the appropriate agency; (ii) upon request, each of them will forward to the other water

supply plans and water use data relevant to the management of the Roanoke River Basin; and (iii) they will consider drought conservation measures comparable to those set forth in this article FL6 § 3 or other appropriate measures in connection with their own regulatory activities concerning future interbasin transfers from the project in excess of 2 mgd and make appropriate recommendations to other local, state and federal government or regulatory bodies concerning such transfers.

4.0 Other SE Va. Project commitments.

4.1 No SE Va. User shall seek any special regulations, legislation or stricter discharge standards for Pea Hill Creek, Lake Gaston or Kerr Reservoir than would apply to other similar waters of the Commonwealth of Virginia; nor shall they interfere with recreational uses of Lake Gaston or Kerr Reservoir such as swimming, boating, snorkeling, fishing, or other recreational activities on Lake Gaston or Kerr Reservoir or petition any other agency to seek such restrictions. The use of Virginia Beach's storage in Kerr Reservoir shall not be considered interference with recreational uses.

4.2 Virginia Beach shall pay, as part of the cost of the SE Va. Project to be shared by all SE Va. Users, a total of \$200,000 per year (in 2003 dollars, adjusted for changes in the CPI) to the Lake Gaston Weed Control Council, its successor, or other entity with similar purposes and acceptable to Virginia Beach and agreed to by NCDENR, for hydrilla control or other purposes to benefit the environment of the Roanoke Basin. In no event shall the obligation to make payments lapse for lack of an agreed payee.

5.0 Reservation of Rights.

5.1 By entering into and agreeing to be bound by this Agreement, each SE Va. User agrees only to be bound by the terms of this Agreement; and such party does not agree to be bound by any obligations, restrictions or conditions other than those set forth herein, or to the jurisdiction of any agency to impose any obligations, restrictions or conditions upon them directly, or indirectly by imposing conditions on the Licensee; nor does any SE Va. User waive any argument it may have in opposition to any such jurisdiction, obligation, restriction or condition or any right, power or privilege it may have under Virginia or other law, including any right it may have to withdraw water from the Roanoke River or to acquire an interest in the Roanoke Rapids and Gaston Project by condemnation.

5.2 Notwithstanding any provision of this Agreement, this Agreement shall not be construed to limit in any way any right of the State of North Carolina, the Commonwealth of Virginia, or any SE Va. User to seek an equitable apportionment of the waters of the Roanoke River.

6.0 Water Quality Standards

The Licensee shall work in consultation with the NCDWQ per Article FL7 if flows are reduced below drought condition minimums described in FL2.

ARTICLE FL7 Downstream Water Quality

1.0 Goal

1.1 The purpose of this article is to protect water quality downstream of Roanoke Rapids Dam.

2.0 Minimum Flow

Minimum flow to address downstream assimilation needs are discussed in Article FL2, paragraph 4.0 of this agreement.

3.0 Erosion and Sedimentation

Agreements to study erosion and sedimentation effects from fluctuations in flows as related to hydropower production are addressed in Articles FL3 and FL4 of this agreement.

4.0 Minimum Oxygen Releases from Roanoke Rapids Dam

- 4.1 Water flowing through the Roanoke Rapids hydropower turbines shall meet or exceed an instantaneous dissolved oxygen concentration of 4.0 mg/l (ppm).
- 4.2 Water flowing through the Roanoke Rapids hydropower turbines shall meet or exceed a daily mean dissolved oxygen concentration of 5.0 mg/l.
- 4.3 The daily mean oxygen concentration shall be calculated as the mean of 24hourly instantaneous analyses.
- 4.4 If dissolved oxygen concentrations immediately upstream of the project do not meet or exceed an instantaneous value of 4.0 mg/l or a daily mean of 5.0 mg/l, the Raleigh Regional Office of the NCDWQ shall be notified and water flowing through the Roanoke Rapids hydropower turbines shall equal or exceed the upstream dissolved oxygen concentration.
- 4.5 Oxygen concentrations shall be measured in the Roanoke Rapids tailrace. During any periods when the dissolved oxygen water quality standard is not met in the tailwater below Roanoke Rapids dam, the Licensee shall begin sampling for dissolved oxygen levels within two business days in Lake Gaston and in the tailwater below Lake Gaston.
- 4.6 Within 6 months of the Licensee acceptance of a new FERC License, the Licensee and the NCDWQ shall agree on the sampling point upstream of project per 4.4 above.

- 4.7 Water flow through the Roanoke Rapids dam shall be maintained to provide 78,000 lbs. of dissolved oxygen per calendar day for the months of May through October, inclusive of the bypass flow. This requirement shall be suspended when the conditions of § 5.1.1 of this article are in effect.
- 4.8 Data shall be maintained on a real-time basis via internet and forwarded to the Wetland/401 Unit, the Ecosystems Unit and the Raleigh and Washington Regional Offices of the NCDWQ every other month (bimonthly) from November 1 through May 31 and monthly June 1 through October 31. Data must be submitted electronically, although printed copies may accompany the electronic submittals. The Licensee shall notify NCDWQ in writing when data have been transmitted. Data must include Flow (cfs), Dissolved Oxygen concentrations (mg/l) and Water Temperature (°C).
- 4.9 In the event of temporary emergency conditions arising in the performance of 4.1, 4.2, 4.4 or 4.7, the Licensee will cooperate in good faith with the NCDWQ and the NCWRC to take such reasonable steps to protect the water quality of the Roanoke River below the Roanoke Rapids Dam.
- 5.0 Drought Conditions Flow Augmentation from Lake Gaston Storage
- 5.1 Conditions requiring flow augmentation from Gaston storage.
 - 5.1.1 USACE is operating Kerr reservoir under its drought management strategy.
 - 5.1.2 Roanoke Rapids is not in a load following mode and is only releasing drought minimum flows as directed by the USACE drought management strategy or per flows referenced in FL2, paragraph 4.2.
 - 5.1.3 A Weekly declaration from USACE is issued that is less than the total of drought minimum flow required at Roanoke Rapids.
 - 5.1.4 Lake Gaston water level is above 197' msl.
 - 5.1.5 If all four of the above conditions are met, the Licensee would begin augmenting downstream flows from the Lake Gaston storage in consultation with the NCDWQ and NCWRC.
- 5.2 Lake Gaston storage
 - 5.2.1 Lake Gaston normal water level shall be regulated by the Licensee per LK1.
 - 5.2.2 For the purposes of flow augmentation downstream under the conditions listed above in 5.1, Lake Gaston has 3' of drought storage.
 - 5.2.3 Lake Gaston has approximately 60,000 acre-feet of storage between 200' msl and 197' msl.
 - 5.2.4 The Licensee utilizes one foot of storage for normal operation between 200' msl and 199' msl.
 - 5.2.5 If all of the drought storage is used for downstream flow augmentation, the Licensee may regulate Lake Gaston from 197.5' msl to 196.5' msl. to meet system operational needs.

- 5.3 Roanoke Rapids effectively has no storage capacity for downstream flow augmentation.
 - 5.4 Once conditions of 5.1 are met, Lake Gaston storage will be used to augment the downstream flow to adhere to the FERC drought minimum flow, per direction of the NCDWQ.
 - 5.5 Once Gaston reaches 197' msl, flow augmentation will cease and flow entering the project from Kerr = flow leaving Roanoke Rapids dam, and assume accounting for consumptive withdrawals, evaporation and inflows to Lake Gaston and Roanoke Rapids Lake.
 - 5.6 Upon initiation of 5.4, the president of the Lake Gaston Association shall be notified and the Licensee shall post the information on its "Lake Information" web page.
 - 5.7 When the USACE weekly declaration begins to exceed Roanoke Rapids drought minimum flows, the Licensee will allow Lake Gaston to refill to 199.5' msl prior to:
 - 5.7.1 Exceeding drought minimum flow at Roanoke Rapids.
 - 5.7.2 Starting to operate Roanoke Rapids in a load following mode.
 - 5.8 The Licensee will implement these conditions only upon consultation with and direction from the USACE and the NCDWQ.
- 6.0 Downstream Water Quality Monitoring
- 6.1 The Licensee will fund three of the current USGS continuous water quality monitoring stations for dissolved oxygen and temperature at Halifax, Oak City and Jamesville. These stations shall be operated continuously throughout the year.
 - 6.1.1 Funding will be provided annually by the Licensee to the NCDENR. Estimated costs for year one is \$20,000 to \$25,000.
 - 6.1.2 The stations shall be monitored to document that dissolved oxygen levels in the Roanoke River as a result of the drainage of water from the floodplain resulting from project operations equals or exceeds a daily mean dissolved oxygen concentration of 5.0 mg/l with a minimum instantaneous value of not less than 4.0 mg/L in the mainstem river. This concentration shall be calculated as the mean of 24 hourly instantaneous analyses or by all available daily data.
 - 6.1.3 At such time the NCDWQ and NCWRC establishes that the Licensee's operations do not or no longer affect downstream water quality, Licensee funding will no longer be required.
 - 6.1.4 If funding is discontinued as per agreement under 6.1.3 and subsequent Licensee operational changes enable the NCDWQ to demonstrate that water quality monitoring is again necessary, the Licensee's funding requirement shall be reinstated. The study period shall be mutually agreed upon by the Licensee, NCDWQ and NCWRC.

- 6.2 Data shall be forwarded to the Wetland/401 Unit, the Ecosystems Unit and the Raleigh and Washington Regional Offices of the NCDWQ every other month (bimonthly) from November 1 through May 31 and monthly June 1 through October 31. Data must be submitted electronically and the Licensee shall notify DWQ in writing that the data have been sent. Data must include all available parameters collected by the USGS (e.g. stage or flow) in addition to: Site, Date, Time, Depth, Dissolved Oxygen concentrations (mg/l), and Water Temperature (°C).
- 6.3 In the event of emergency water quality conditions, the Licensee will cooperate in good faith with the NCDWQ and the NCWRC to take such reasonable steps to protect the water quality of the Roanoke River below the Roanoke Rapids Dam.
- 7.0 Study Cycles
- 7.1 The Licensee, NCDWQ and NCWRC shall mutually agree upon a method of evaluating data collected as per agreement under 6.0 within first year of monitoring. The study cycle shall be 5 year periods (same as study period for FL3 and FL4).
- 7.2 If during water quality data evaluation described in § 6.0, the NCDWQ and NCWRC finds that scientific data establish a causal link between the Licensee's rescheduling of the USACE's weekly declaration and the reduction of water quality in the mainstem river below state standards, the Licensee shall, with concurrence, NCDWQ and NCWRC, identify and implement operational changes that will significantly reduce the Licensee's water quality impacts.
- 7.3 Each step taken according to § 7.2 must reduce the Licensee's rescheduling of the USACE weekly declaration by a proportional amount equivalent to 5 divided by the period of the license in years. Thus, if as the result of monitoring, the Licensee takes one step to reduce its rescheduling of the USACE weekly declaration at the end of each monitoring cycle, by the end of the last monitoring cycle, each day the Licensee will release one seventh of the USACE weekly declaration. The exact means for calculating the proportionality of steps will be determined by the Licensee, NCDWQ and NCWRC (this should as much as possible be coordinated with the FL4 Cooperative Management Team. This adjustment will be superceded by FL4 § 2.3 if adjustments are required in the same study period.
- 7.4 The Licensee's flexibility for scheduling releases during a peaking day is not constrained by this article.
- 7.5 The Licensee is not required by this agreement to make modifications to the USACE weekly declaration.
- 7.6 The maximum operational duty of the Licensee under this article is reached when the daily flow of water through the Roanoke Rapids Dam equals one seventh of the USACE weekly declaration, except per § 5.0 of this article.

8.0 Tributary Aquatic Communities

Agreements to study the downstream riparian ecosystem effects from fluctuations in flows as related to hydropower production are addressed in Article FL4 of this agreement.

9.0 Implementation

The Licensee shall begin compliance with this article within 30 days of acceptance of a new FERC license.

ARTICLE FS1 Roanoke Rapids and Lake Gaston Fishery Enhancement

1.0 Goal

The intent of this article is to enhance the sport fisheries in Lake Gaston and Roanoke Rapids Lake by supplemental stocking of fish and fisheries evaluation

2.0 Funding for Supplemental Stocking

The Licensee shall provide to the NCWRC funding in the sum of \$50,000 per year (year 2002 dollars adjusted for changes in the CPI) for enhancing fisheries in Roanoke Rapids Reservoir and Lake Gaston through stocking and other management activities. Additionally, for the purpose of enhancing the sport fishery in Lake Gaston by supplemental stocking of fish, the Licensee shall provide to the VDGIF funding in the sum of \$10,000 per year (year 2002 dollars adjusted for changes in the CPI).

3.0 Fisheries Plan

The NCWRC will develop a fisheries plan for implementation on a five-year cycle. This plan shall be developed and implemented in consultation with Dominion's Manager Environmental Biology. Dominion's consultation shall not interfere with the NCWRC's statutory authority but shall be appropriate as the owner and operator of the project.

4.0 Schedule of Funding

The Licensee shall make the first annual payments within six months of the Licensee acceptance of a new FERC license. Subsequent annual payments shall be made at one-year intervals from the first payment.

ARTICLE FS2 Diadromous Fish Restoration

1.0 Purpose

1.1 The purpose of this settlement article is to provide a structure for the Licensee to cooperate in the restoration of diadromous fish in the Roanoke River Basin.

- 1.2 For this settlement article, the five agencies with the responsibility of overseeing diadromous fish restoration in the Roanoke River, USFWS, NMFS, NCWRC, NCDMF, and VDGIF will be referred to collectively as “Agencies.”
 - 1.3 The Agencies and the Licensee agree to form a Diadromous Fish Restoration Technical Advisory Committee (DFRTAC) which will provide a forum for advice and cooperation for restoration of diadromous fish in the Roanoke River Basin. The Agencies and Licensee may elect by unanimous consent to invite other entities, such as the U.S. Army Corps of Engineers or USGS, to join the DFRTAC.
 - 1.4 The establishment of the DFRTAC cannot usurp any regulatory authority from any of the participating agencies.
- 2.0 Target Species
- 2.1 Species targeted for restoration include American shad, American eel, striped bass, Atlantic sturgeon, shortnose sturgeon, blueback herring, alewife, sea lamprey, and hickory shad.
 - 2.2 The initial management objectives are for American eel and American shad. At the time of this agreement, the Agencies are not proposing measures specifically for the passage of striped bass, Atlantic sturgeon, shortnose sturgeon, blueback herring, alewife, sea lamprey, or hickory shad.
- 3.0 American Eel
- The Licensee will work with the agencies in adhering to the following plan:
- 3.1 Year 1 Licensee will sample and evaluate elver / yellow eel distribution in the tailrace and bypass of Roanoke Rapids Dam as well as along the dam, from January - through December. Those eels captured below Roanoke Rapids Dam in this sampling program will be marked with appropriate marking techniques and released in Roanoke Rapids Lake. Sampling schedule in Year 2 may be reduced to correspond to the period(s) of peak upstream migration as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures. This study will be repeated in years 2 through 4. In year 1 the members of DFRTAC will decide, through its decision-making and dispute resolution procedures, upon an implementation and operation plan for the restoration of the A. eel in the Roanoke River Basin below John H. Kerr Dam consistent with the terms set forth in this article.
 - 3.2 Years 2 and 3, evaluation continues, with specified flow in bypass per FL1 §4.3. If the evaluation of eels collected at the base of Roanoke Rapids Dam indicates that provisions for passage are needed earlier than year 5 as indicated in 3.4 below, then 3.3 and 3.4 shall be accelerated accordingly. The agencies shall make this decision with advice from the Licensee. Distribution studies in the bypass may be repeated as bypass flow increases per FL1.

- 3.3 Year 4 evaluation continues. Licensee will work cooperatively with Agencies to design an eelway for Roanoke Rapids Dam. An eelway shall consist of an Agency-approved safe, timely and effective passage for American eels. This may include trap/transport, ramps, ladders, lifts, etc. The members of DFRTAC will begin at this time an A. eel distribution evaluation on a 3-year cycle. The study area will focus on the tributaries to Roanoke Rapids Lake. There will be at least 3 study cycles but no more than 6 study cycles as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures.
- 3.4 Year 5, or earlier (see 3.2), Licensee will place in operation an eelway (see definition in 3.3 above) at Roanoke Rapids Dam. In cooperation with Agencies, Licensee will mark eels at the base of the dam and determine the percentage passed upstream. This “efficiency” study shall continue for a maximum of 4 years. If decided to be necessary by the members of DFRTAC through its decision-making and dispute resolution procedures, the Licensee may be required to perform two additional years of passage efficiency study during the spring spawning period when flow in the bypass is increased per FL1 §§ 4.4, 4.5 or 4.6. The members of DFRTAC shall decide upon the appropriate protocol for marking of eels passed over the Roanoke Rapids Dam through its decision-making and dispute resolution procedures.
- 3.5 Year 5, begin cooperative evaluation of eel distribution at the base of Gaston Dam using a sampling design cooperatively developed by the members of DFRTAC and approved by the Agencies, drawing on experience gained while sampling at the base of Roanoke Rapids Dam in years 1 through 4. This study will be repeated in years 6 through 8.
- 3.6 Year 8, Licensee will work cooperatively with Agencies to design an eelway for Gaston Dam. An eelway shall consist of an Agency approved safe, timely and effective passage for A. eels. This may include trap/transport, ramps, ladders, lifts, etc. It will also include consideration of information gained during operation of the passage facility at the Roanoke Rapids Dam. If the trap and transport is deemed preferable, the adequacy of the Roanoke Rapids trapping facility to serve as a model or source for Gaston, will be considered.
- 3.7 Year 9, Licensee will provide safe, timely and effective upstream passage and, cooperatively with the agencies, conduct efficiency studies at Gaston Dam. Passage may be delayed if 150 eels are not collected at the base of Gaston Dam during the months of February through June (or other months as determined through initial sampling, with a sampling design decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures). If a threshold of 150 eels is not collected, sampling shall continue annually until the threshold is met and construction and operational changes designed to enhance downstream passage at the Gaston Dam (§ 3.10) will be delayed accordingly. The threshold number of 150 eels may be modified by the members of DRFTAC

- through its decision-making and dispute resolution procedures, based on experience gained while sampling the base of Roanoke Rapids Dam in years 1 through 5. A passage “efficiency” study shall be put in place similar to that described in 3.4 above but incorporating lessons learned in that experience. This “efficiency” study shall continue for a maximum of 4 years. The members of DFRTAC shall decide upon the appropriate protocol for marking of eels passed over the Gaston Dam through its decision-making and dispute resolution procedures. An A. eel distribution evaluation similar to that undertaken in Roanoke Rapids Lake pursuant to § 3.3 will begin in Lake Gaston starting year 9.
- 3.8 Year 9 the Licensee, in cooperation with the other members of DRFTAC, will conduct a Literature Review and evaluation of current Best Available Technology for downstream passage. Evaluation shall include, among others, costs and determination of downstream passage efficiency criteria.
- 3.9 Year 12 Licensee agrees to provide safe, timely and effective downstream passage as approved by the Agencies and /or amend operations for eel at Roanoke Rapids Dam consistent with results of 3.8 above at Roanoke Rapids Dam. Safe, timely and effective downstream passage may include use of the Roanoke Rapids bypass system and technology similar in costs to strobe lights at the Roanoke Rapids Dam submerged weir or other comparable technology and seasonal night-time operational modifications. Any agency decision to require means of passage costing substantially more than agreed to herein shall require exercise of reserved authority under § 6.
- 3.10 Year 15, The Licensee agrees to provide safe, timely and effective downstream passage for eel at Lake Gaston Dam as determined to be necessary by the agencies. Installation of downstream passage may be delayed beyond year 15 if so decided by the members of DFRTAC through its decision-making and dispute resolution procedures. Safe, timely and effective downstream passage will include use of technology similar in costs to strobe lights on the submerged weir at the Gaston Dam, a bypass system and operational changes. (Bypass system not to exceed the bypass flow at Roanoke Rapids Dam and operation of system to target time of day and period in year of peak out-migration.) Any agency decision to require means of passage costing substantially more than agreed to herein shall require exercise of reserved authority under § 6.
- 3.11 Licensee will contribute to the above efforts as specified in Table FS2-1

TABLE FS2-1

Description of Study	Years	Licensee Cost Share (%)
1. Distribution in tailrace/bypass. (Timing, distribution along dam or tailrace, mark trapped eels repeat as necessary per FL1)	1 – 4	100*
2. Design of eelway at RR	4	100*
3. Passage/trapping efficiency @ RR, 2 yrs. additional study if flows are increased in spring	5 – 8	100*
4. Eel distribution at base of Gaston, same as 1 above.	5 – 8	100*
5. Eel distribution in RR Lake. (Studies concentrate on tribs, study cycle every 3 years for 6 cycles (§ 3.3))	5 – 20	100**
6. Decision on Eelway at Gaston	7	NA
7. Design eelway at Gaston if required	8	100*
8. Passage/efficiency study @Gaston	9 – 12	100***
9. Literature review of downstream passage @ RR	9	100*
10. Eel distribution in Gaston (see 5 above § 3.7))	9 – 24	100**
11. RR and Gaston downstream passage	12, 15	100*

* Licensee to fund 100%, but any agency contribution in process will be in-kind contribution and not reimbursed by Licensee.

** Agencies will perform any open lake portions of this study, Licensee responsible for tributaries.

*** This should be similar to Roanoke Rapids

4.0 American Shad

The Licensee agrees to provide safe and effective upstream passage for the number of American shad supported by the available habitat upstream of its facilities, for the duration of the license term, according to the phased implementation program set forth in this § 4. If the criteria for initiating Phase 2 are met pursuant to § 4.2 of this article, the Licensee's upstream passage obligation is limited to 50,000 American shad annually (the estimated capacity of habitat in the basin between Roanoke Rapids and Kerr Dams). If the criteria for initiating Phase 3 are met pursuant to §4.4 of this article, the Licensee's obligation to provide safe and effective upstream passage of American shad under this agreement shall extend up to 500,000 American shad annually (the estimated capacity of habitat in the basin above Roanoke Rapids Dam).

4.1 Phase 1 - Initial Measures

4.1.1 Year 1

4.1.1.1 The Agencies, in consultation with the other members of the DFRTAC, will design and implement a Comprehensive Monitoring Program (CMP) for the American shad population in

the Roanoke River basin. The plan, which the Licensee will fund according to table FS2-2, shall include:

- an annual baseline population estimate
 - annual spawning stock assessment
 - annual out-migrating juvenile monitoring/hatchery evaluation on a system-wide basis
 - annual monitoring of returning adults
- 4.1.1.2 The members of DFRTAC will cooperatively conduct a survey of American shad spawning and nursery habitat in the headwaters of Lake Gaston and in appropriate tributaries of Kerr Reservoir. Assessment of potential habitats will continue in subsequent years until all habitats have been evaluated. The Licensee will assist in funding according to Table FS2-2.
- 4.1.1.3 The Agencies will initiate stocking of American shad fry in Gaston headwaters and Kerr Reservoir tributaries. The annual stocking target will be 7 million fry, dispersed among upstream Kerr and Gaston headwaters and the lower Roanoke River. The Licensee will contribute to the stocking cost per table FS2-2.
- The Licensee, with the agreement of the other members of DFRTAC, will make an appropriate reduction in its contribution to A. shad fry stocking at such time additional partners are added to fund the stocking effort. The Licensee's contribution for upper river A. shad stocking will cease when the NCWRC no longer stocks fry in the upper Roanoke River Basin upstream of Roanoke Rapids Dam.
- 4.1.1.4 The Agencies will initiate an Annual Population Estimate and Spawning Stock Assessment. The Licensee shall contribute to the assessment cost per table FS2-2.
- The Licensee's contribution to the Annual Population Estimate and Spawning Stock Assessment shall end after the fifth year of phase 2 (§ 4.2 below).
- 4.1.1.5 The Licensee will provide funding to the NCWRC to coordinate Adult Shad Telemetry Studies, Out-migrating Juvenile Shad Evaluation, and Habitat Identification and Prioritization per Table FS2-2.
- The Licensee's contribution to the Out-migrating Juvenile Shad Evaluation study shall end after the third year of phase 2 (§ 4.2 below)

- 4.1.1.6 The Licensee, working with the other members of DFRTAC, will develop a plan for initial trap and transport facilities, and their management and operation.
 - 4.1.1.7 The Licensee will conduct a literature-based downstream passage and turbine mortality study for post-spawned adults and out-migrating juvenile A. shad. The members of DFRTAC shall determine the need to execute further studies per § 4.1.2.2 below through its decision-making and dispute resolution procedures.
 - 4.1.1.8 The Licensee will explore cost-share partnerships for passage and restoration of American shad upstream of Kerr Dam. The other members of the DFRTAC will support these efforts to the extent they are legally able. If no cost-shared partnerships are formed, the Licensee shall continue to provide funds as per this agreement.
 - 4.1.1.9 The Licensee shall fund 50% of the cost for a Roanoke River Diadromous Fish Restoration Coordinator. The coordinator's duties shall include coordination and monitoring and other duties beneficial to the NCWRC and the Licensee. The Licensee's contribution for the Coordinator position will continue for the term of the license.
 - At such time as additional funding partners are added to the restoration effort, the Licensee's contribution to the funding of the Coordinator's position will be reduced as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures.
 - 4.1.1.10 Licensee will assume 25% of costs exceeding the funds established in FS2-2 on an annual basis if study costs designated in FS2-2 are exceeded (over-runs).
- 4.1.2 Year 2
- 4.1.2.1 The Agencies will conduct the annual component of the CMP, continue the upstream shad spawning and nursery habitat survey, and continue upstream fry stocking. Licensee agrees to fund these activities as established in Table FS2-2. Monitoring of juvenile out-migrants will continue to be funded as described in § 4.1.1. The Licensee will implement an initial trap and transport program approved by the members of DFRTAC through its decision-making and dispute resolution procedures (subject to the provisions of § 5.4 of this article), capable of providing safe and effective transport (passage) for a minimum of 2,000 adult fish in viable spawning condition. The initial trap and transport program will begin phased passage of fish to upstream habitats and provide fish for telemetry studies of fish behavior in the reservoirs and

tailwater habitats. In the year after the Licensee has demonstrated (or built under § 4.1.4) a successful transport technique, the Licensee will begin to fund telemetry studies on up to 150 fish per year within the Roanoke Rapids and Gaston Reservoirs or as otherwise decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures. The telemetry studies will be conducted for a period of three years or until 450 tagged adult A. shad have been placed in the reservoirs.

4.1.2.2 In Year 2, the Licensee agrees to conduct further turbine mortality studies for the out-migrating juvenile and post spawned adult shad only if the members of DFRTAC through its decision-making and dispute resolution procedures (subject to the provisions of § 5.4 of this article) determine mortality rates are expected to be higher than 7% for juvenile and 15% for post-spawned adults per § 4.1.1.7.

4.1.3 Years 3 and 4

In Years 3 and 4, the Agencies will conduct the annual components of the CMP, continue the upstream shad spawning and nursery habitat survey, and continue upstream fry stocking and monitoring of juvenile out-migrants. The Licensee will continue the initial program of trap and transport, including telemetry studies as described in §4.1.2.1 above and continue to monitor out-migrating juveniles. The Agencies, with input from the other members of DFRTAC will set criteria to determine successful adult and juvenile movement through the reservoirs that will determine, in part, the time to transition into phase 2. The criteria for successful upstream and downstream movement would be a reasonable anticipation of a beneficial stock effect.

4.1.4 The Licensee will not be required to construct permanent trap/sort/transport facilities at Roanoke Rapids dam to collect fish for this initial stage before Year 5, unless during years 2 and 3 the initial trap and transport program specified in § 4.1.1.6 fails to meet the objective of Phase 1. If, after two years NMFS and/or FWS determine that the Licensee's initial trap and transport efforts have not been successful, then the Licensee shall immediately begin the design and construction of a safe and fully effective trap and transport facility and operation that meets the engineering criteria of NMFS and/or USFWS. The facility is to be constructed and fully operational within 2 years. If the criteria ("triggers") described in § 4.2.1 of this article have been met, then the facilities shall be designed and constructed to meet the objective of Phase 2, i.e., sized to transport 500,000 fish. If the criteria ("triggers") described in § 4.2.1 of this article have not

been met, then the facility and operation shall be designed to meet the objectives of Phase 1, as determined by NMFS and/or USFWS in coordination with other members of DFRTAC.

TABLE FS2-2: Summary of Licensee Cost Contributions

STUDY / YEAR	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5
A. Shad Fry Production	\$14,167	\$23,167	\$21,600	\$31,600	\$31,600
Telemetry Adult Shad			76,600	76,600	76,600
Annual Population Assess.				44,945	44,945
Out-migrating Juvenile	35,600	45,200	45,200	45,200	45,200
Upstream Habitat	8,300	8,300	8,300		
Lit. Rev. Downstream Pass.	Full cost				
Study Coordinator				40,000	40,000

	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10
A. Shad Fry Production	31,600	40,600	31,600	31,600	38,267
Telemetry Adult Shad	4,200				
Annual Population Assess.	14,915	14,915	14,915	14,915	29,765
Out-migrating Juvenile	49,200	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
A. Shad Fry Production	31,600	31,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	16,565
Out-migrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 16	Yr. 17	Yr. 18	Yr. 19	Yr. 20
A. Shad Fry Production	40,600	31,600	31,600	31,600	38,267
Annual Population Assess.	14,915	14,915	14,915	14,915	29,765
Out-migrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 21	Yr. 22	Yr. 23	Yr. 24	Yr. 25
A. Shad Fry Production	31,600	40,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	14,915
Out-migrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 26	Yr. 27	Yr. 28	Yr. 29	Yr. 30
A. Shad Fry Production	31,600	40,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	16,565
Out-migrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 31	Yr. 32	Yr. 33	Yr. 34	Yr. 35
A. Shad Fry Production	31,600	40,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	16,565
Out-migrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 36	Yr. 37	Yr. 38	Yr. 39	Yr. 40
A. Shad Fry Production	31,600	40,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	16,565
Out-migrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

4.2 Transition to Phase 2

- 4.2.1 During or after Year 4, NMFS and/or USFWS will determine, in coordination with NCWRC and VDGIF, when to transition into Phase 2. This determination will be based on adult and juvenile movement through the reservoirs and obtaining a lower river American shad population estimate of approximately 20,000 adults based upon two annual spawning run population estimates, which do not have to be consecutive, as determined by the annual baseline population estimate (see 4.1.1.1), and also taking into account available scientific and fishery management information. The need to transition to Phase 2 will be assessed annually by NMFS and USFWS until a decision is made to proceed to Phase 2.
- 4.2.2 Within 12 months after a decision has been made by NMFS and USFWS to proceed to Phase 2, the Licensee shall submit the final design and operation plan for the fishway facilities for USFWS and NMFS approval.
- 4.2.3 Within two years after the decision to proceed to Phase 2, the Licensee will complete construction, engineering testing, and effectiveness evaluation and initiate operation of a trap/sort/transport facility at Roanoke Rapids Dam to provide safe, timely, and effective passage upstream. The design capacity of the facility shall be for 500,000 American shad annually.

4.3 Phase 2.

During phase 2:

- 4.3.1 The Licensee will fully fund and operate the Phase 2 Trap and Transport facility and operation (refer to § 4.2.3).
- 4.3.2 The Licensee will provide funding for additional Phase 2 studies and measures per Table FS2-2.
- 4.3.3 The Agencies agree to support Licensee's efforts to obtain financial support from the USACE for construction and operation of the trap/sort/transport facility and its other diadromous fish restoration efforts.
- 4.3.4 The Agencies will conduct the annual components of the CMP and continue upstream fry stocking and monitoring of juvenile migrants, all under the same arrangements as in previous years per 4.1.1 above.
- 4.3.5 Agencies will not require construction or operation of upstream passage facilities (except for American eel as determined by § 3.0) at the Gaston Dam during Phase 2.
- 4.3.6 The Licensee will operate the trap and transport facility for a period of time each year sufficient to encompass 8 to 12 weeks of the peak(s) of the A. shad migration season, as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures.
- 4.3.7 The Licensee will provide transport capacity (number of trucks, tanks, etc.) in each shad migration season sufficient to pass the number of A. shad anticipated to be trapped in that migration season as decided by DFRTAC through its decision-making and dispute resolution procedures. The commitment to provide transport capacity extends up to the estimated capacity of the basin between Roanoke Rapids and Kerr Dams, currently estimated at 50,000 A. shad.
- 4.3.8 Any species of anadromous fish may be transported within the transport capacity and timeframe of the trap and transport operation in any given year. However, transport of species other than A. shad shall be considered incidental and not place undue burden on the Licensee.
- 4.3.9 The Licensee agrees to safely and effectively transport the American shad to any location identified by the agencies within a geographic radius determined by the number of road miles between the Roanoke Rapids dam and sufficiently upstream of Kerr Dam to minimize fallback through the turbines.
- 4.3.10 The Licensee will make any trapped fish (including any adult fish in excess of the above mentioned 50,000) available to the USFWS, NMFS, NCWRC, NCDMF, USGS or the VDGIF who want to sort and move them at their own expense to other locations within the Roanoke River Basin. Any other parties desiring additional fish to be sorted and moved must be approved and permitted by the NCWRC. The Licensee has the right to require

reasonable compensation for use of the trap and sort facility by parties other than the 6 agencies listed above.

- 4.3.11 The Licensee will continue to fund studies agreed to above in Phase 2. The Agencies will not require the Licensee to fund additional studies during Phase 2, and some may be discontinued when appropriate.
- 4.3.12 If the juvenile A. shad mortality is expected or demonstrated (see § 4.1.2.2) to be greater than 7%, the Licensee agrees to make minor adjustments in operations to facilitate downstream passage of out-migrating A. shad, as determined by the members of DFRTAC through its decision-making and dispute resolution procedures (subject to the provisions of § 5.4 in this article). Minor adjustments may include installation of low cost technologies such as lighting, as well as changes in the operational regime of the Projects. Spillage will not be required for American shad at Gaston for Phase 2. Adjustments to operations will only be required during the days of peak out-migration of juvenile A. shad. This window may vary from year to year and shall be determined by the Agencies. Major adjustments or spillage are not within the scope of Phase 2 and will require exercise of reserved authority by the Agencies.
- 4.3.13 If the post spawned adult A. shad mortality is expected or demonstrated to be greater than 20%, then the members of DFRTAC through its decision-making and dispute resolution procedures (subject to the provisions of § 5.4 in this article) will cooperatively assess the current state of knowledge regarding the contribution of post spawned adults to stock dynamics, and the need for adjustments to reduce mortality. Minor adjustments shall made by the Licensee as decided upon with the other members of DFRTAC through its decision-making and dispute resolution procedures (subject to the provisions of § 5.4 of this article). Minor adjustments shall be similar in scope to adjustments described in 4.3.12. for juvenile shad. Major adjustments or spillage are not within the scope of Phase 2 and will require exercise of reserved authority by the Agencies.

4.4 Phase 3

Phase 3 will be initiated if NMFS or USFWS, in consultation with the other members of DFRTAC, determine that the trap-and-haul facility in phase 2 has become inadequate to meet Licensee's obligation for safe and effective upstream passage under this Agreement, in the event of construction of a passage facility at the Kerr Dam, or in the event of the necessity of major measures to accomplish downstream passage. The decision by the USFWS and NMFS to enter into phase 3 shall require exercise of reserved authority under § 6.0 of this agreement. In the case of such exercise of authority, all reasonable options for fish passage will be considered.

5.0 Dispute Resolution

- 5.1 The Parties agree to seek unanimous consensus within the framework of DFRTAC for all decisions relating to the restoration of anadromous fish to their habitats in the Roanoke River Basin under this article, except those decisions specifically reserved to one or more parties. The Licensee shall convene a meeting of DFRTAC to discuss any such decision at least 120 days before the decision deadline. The Parties shall have 90 days to reach consensus and, if necessary to reach consensus, shall hold at least three meetings during such time period.
- 5.2 If consensus is reached, the Parties shall follow the consensus. If a matter reserved for decision under agency authority is resolved by consensus, the agencies will adopt the consensus as their preferred alternative, subject to any required public process.
- 5.3 If such consensus is lacking, the matter shall be referred to an agreed-upon arbitrator for final decision except for the agency jurisdictional decisions specified herein.
- 5.4 Decisions that involve the adequacy and timing of fish passage measures, or the adequacy of studies to determine the same shall be made, if no consensus is possible, by NMFS and USFWS on the basis of the record (including the comments of all DFRTAC members) under the procedures and requirement for decisions by such public agencies.
- 5.5 Because DFRTAC may provide advice to Federal Fisheries management agencies on decisions within their statutory authority, it shall be chartered under the Federal Advisory Committee Act and subject to the relevant requirements thereof.

6.0 Reservation of Authority

The USFWS and NMFS agree to defer under an appropriate reservation of their Section 18 authority their decisions regarding the specific type, design or operation of passage facilities that may be required in the future during the term of the license, to maintain safe, timely and effective passage for diadromous fish.

7.0 Information Sharing

Licensee agrees to share with the Agencies all relevant non-proprietary information available to support any decision by the USACE to provide safe, timely and effective fish passage at the Kerr Dam, or to otherwise assist with fish passage in the Roanoke River basin.

8.0 Support for Agreement

The Parties agree to refrain from advocating in any forum actions or decisions that would undermine or be inconsistent with this Settlement Agreement, or any provision of this Agreement, including refraining from any advocacy challenging the factual or legal basis for the obligations undertaken by the Parties pursuant to this agreement, provided that,

the Licensee retains the right to challenge any agency decision made after the effective date of this Agreement regarding the specific type, design or operation of fishways or timing of passage needed to provide safe, timely and effective passage pursuant to this Agreement.

9.0 Review of Beneficial Effect of Diadromous Species

If after phase 2 is operational, the Licensee believes, on the basis of new evidence, that the continuation of the upstream passage program is no longer likely to provide a beneficial effect for American Shad and/or other diadromous species, that party may petition DFRTAC to review such evidence. The members of DFRTAC will cooperatively review the information and make recommendations to NMFS and/or USFWS who shall be solely responsible for any determination to discontinue or defer the upstream passage program. Notwithstanding any discontinuation of the Licensee's upstream passage obligations under this Article, the Licensee shall continue to cooperatively fund the Diadromous Fish Coordinator position and fund the A. shad fry stocking effort in the lower river below the Roanoke Rapids Dam.

10.0 USACE Involvement

If, upon initiation of Phase 2 pursuant to § 4.3 above, the USACE has not committed to undertake actions in furtherance of diadromous fishery resource restoration upstream of Kerr Dam or such commitment is not reasonably foreseeable as the outcome of an evaluation (or planning) process by the USACE, the members of DFRTAC shall cooperatively undertake a review of the restoration program under this agreement, and identify alternative long-term plans or programs for continuing restoration efforts in the upper Roanoke Basin, pending a commitment by the USACE to assist in upstream diadromous fishery resource restoration. The members of DFRTAC may decide upon a recommendation, for adoption by the parties, including such amendment to the agreement and the FERC license as may be necessary or appropriate, to refocus the Licensee's actions for diadromous fish restoration upstream of John H. Kerr Dam to restoration actions in Lake Gaston, Roanoke Rapids Lake and the lower Roanoke River. The focus on other diadromous fish restoration actions not dependent upon USACE above John H. Kerr Dam, in Lakes Gaston and Roanoke Rapids, and the lower Roanoke River shall continue.

ARTICLE LK1 Lake Water Levels

1.0 Goals

The intent of this article is to provide a structure for optimization of Lake Gaston and Roanoke Rapids Lake for ecological, cultural and recreational values while maintaining the Licensee's operational flexibility.

2.0 Level Measurement

- 2.1 Lake water level is defined as surface water elevation expressed in feet above mean sea level (msl) and measured immediately upstream of the applicable Project dam.
- 2.2 The Licensee shall make available, and update daily, on its website projected Lake Gaston water levels.

3.0 Normal Level

- 3.1 The Licensee shall operate the Project so that during normal operation Lake Gaston water level is maintained at 199.5 feet, +/- 0.5 foot (between 199 and 200 feet), and Roanoke Rapids Lake water level is maintained at 129.5 feet, +/- 2.5 feet (between 127 and 132 feet).
- 3.2 During the striped bass spawning season water may be stored in Lake Gaston between elevations 200 and 201 feet for weekend downstream flow augmentation.
- 3.3 Notwithstanding the limits imposed above, the Lake Gaston water level may be allowed to fall below elevation 199 feet, but no lower than elevation 198 feet, for up to 48 hours during any one seven day period and up to 360 hours per calendar year and; Roanoke Rapids Lake water level may be allowed to fall below elevation 127 feet, but no lower than elevation 125 feet, for up to 48 hours during any one seven day period and up to 360 hours per calendar year.
- 3.4 During April and May (bass spawning season), the Licensee shall consult with the NCWRC prior to reducing Lake Gaston water levels below 199 feet msl.

4.0 Minimum Levels

- 4.1 The minimum lake water level requirements may be temporarily modified if required by operating emergencies beyond the control of the Licensee.
- 4.2 Temporary modifications may occur upon agreement between the Licensee and the NCDWQ if flow release from Kerr Dam is insufficient to satisfy both the minimum flow and minimum lake water level requirements (See FL7). Other short periods of level deviation may occur upon agreement between the Licensee and the NCWRC. If the minimum lake water level requirement is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 30 days after each such incident.
- 4.3 In the case of drought conditions declared by the USACE, this license article shall be superceded by Articles FL6 and FL7.

5.0 Maximum Levels

- 5.1 The maximum lake water level requirements may be temporarily modified if required by operating emergencies beyond the control of the Licensee.
- 5.2 During flood events as determined by the USACE, no upper limit on lake water levels shall apply. The Licensee will work in cooperation with the USACE at Kerr

Dam in the case of flood events. Unless otherwise directed by the USACE, the Licensee will not allow the lake levels to exceed 203 feet at the dam in Lake Gaston and 132.75 feet at the dam in the Roanoke Rapids Lake. However, it is recognized that unusual flood events and the USACE releases from Kerr during these events dictate the operation of the dams. The Licensee shall work in cooperation with the Lake Gaston Association and Roanoke Rapids Lake Association to make notification to designated association officers when an unusual lake level event is expected to occur.

The Licensee shall implement this license article within one week after acceptance of a new FERC license by Licensee.

ARTICLE LK2 Recreational Use Survey

1.0 Goals

The intent of this article is to collect information on fish catch rates, fish harvest estimates, economic estimates, lake carrying capacity and user satisfaction with the recreational value of the lakes.

2.0 General

The Licensee shall provide to the NCWRC funding to conduct a recreational user survey once every five years at Lake Gaston or Roanoke Rapids Lake. The survey shall alternate between lakes and shall begin on Lake Gaston in the year 2003 or during the first full year after the effective date of license, whichever is later. By mutual agreement between the NCWRC, VDGIF and Licensee, two consecutive surveys may occur on either Lake Gaston or Roanoke Rapids Lake (but no more than two) if it is determined that a particular lake needs more attention.

3.0 Plan and Reporting

The NCWRC and Licensee shall agree upon the specific aspects of each survey design and results documentation needed. The NCWRC shall be responsible for conducting and reporting the results of the survey. The Licensee shall file these results, along with its comments, as part of the Licensee's filing of annual reports to the Commission.

4.0 Funding

The NCWRC or its consultant shall conduct the survey. The estimated cost of each survey is \$40,000 (2002 dollars). The Licensee shall fund the cost of each survey up to a maximum of 20% over the estimated cost adjusted for changes in the CPI.. The Licensee shall make the \$40,000 (year 2002 dollars) payment by July 1 of the year the survey is conducted. Any additional payment (up to 20% of the \$40,000, year 2002 dollars) shall be made after the survey is completed and within two months after satisfactory

documentation of any additional costs is provided to the Licensee. Upon consultation with Dominion, any under-run of the \$40,000 fund in performing the survey may be utilized by the NCWRC to address related study issues on the Lakes.

ARTICLE LK3 Waterfowl Management Area

1.0 Goal

The purpose of this article is to develop a structure that will aid in the seasonal flooding and de-watering of the western most part of the project boundary in order to manage the area for migratory waterfowl.

2.0 Funding

2.1 The Licensee shall provide co-funding for the construction of a structure to enable controlled flooding of an area on the north side of Lake Gaston upstream of the U.S. Highway 1, VDGIF public boat landing

2.2 Other parties that may be co-funders include Ducks Unlimited, Delta Waterfowl, USACE, USFWS and VDGIF. The Licensee shall provide co-funding of \$1 for each \$1.50 contributed by the other parties up to a maximum contribution by the Licensee of \$100,000 (year 2002 dollars adjusted for changes in the CPI) to the overall cost of this project. The Licensee's funding shall become available within one year of the acceptance of the FERC license by the license, and shall continue to be available until the \$100,000 are fully utilized by the construction of the area, or construction of the area is completed.

3.0 Design and Operation

3.1 Design of the structure and management of the resulting Waterfowl Management Area shall be accomplished through a management team comprised of representatives from the co-funding parties. The Licensee shall not be responsible for providing operating or maintenance funding. If at such time funding is not available through the VDGIF, et. al., for the operation and maintenance of the site, the Waterfowl Management Area shall be left in a "neutral" condition as agreed upon by the VDGIF and the Licensee until such time operation and maintenance funding is again available.

3.2 The Licensee shall review and approve all design and / or construction plans to ensure the area in no way interferes with the operation of the Licensee's hydropower facilities and conforms with the Shoreline Management Plan requirements.

ARTICLE LK4 Shoreline Management Plan

1.0 General

This article is intended to provide for the collaborative review and update of the Shoreline Management Plan (SMP).

2.0 Review of Shoreline Management Plan

- 2.1 The SMP shall be reviewed by the Licensee every five years.
- 2.2 Review shall be in consultation with the NCWRC, the VDGIF, the LGA, the USFWS, the City of Roanoke Rapids and the RPLG.
- 2.3 The Licensee shall host at least one formal meeting, open to the public, with at least a 30-day advanced notice, during the five-year review. This review shall be in consultation with representatives from each of the groups listed above.
- 2.4 After review and comments are received and it is determined that updates are necessary, a revised SMP shall be submitted to the Commission for approval.
- 2.5 The Licensee shall publish the revised SMP within 90 days of receiving the approved SMP from the Commission.

3.0 Construction Procedures

- 3.1 The Licensee agrees to keep the current construction procedures, permitting process and associated fees posted on the Licensee's web page.
- 3.2 The Licensee may modify the construction procedures and permitting requirements upon mutual agreement with the NCWRC, VDGIF, LGA, the City of Roanoke Rapids and the RPLG.
- 3.3 The Licensee may charge fees commensurate with the costs of implementing the SMP.
- 3.4 The Licensee agrees to maintain records of construction or other permitted activities within the boundaries of the project and to enforce compliance with the plan.

4.0 Riparian Enhancement

- 4.1 The Licensee agrees to place into conservation easements within one year of the Licensee's acceptance of a new FERC license the three areas listed below. All three easements shall be written to preserve FERC jurisdiction in any matters as long as the project is licensed by FERC. The easements in 4.1.2 and 4.1.3 shall be written to ensure the Licensee has access to perform all activities necessary for the safe and proper operation and maintenance of its facilities and any activity as may be required by FERC. Conveyance of these easements shall be subject to any required FERC approval.
 - 4.1.1 All islands within Roanoke Rapids Lake and Lake Gaston that can be legally encumbered.

- 4.1.2 The land within the project boundary on NW most shore of Roanoke Rapids Lake close to Gaston Dam (Gaston parcels [a] south of NN2 within the project boundary, [b] NN1 and [c] Roanoke Rapids parcel 37).
- 4.1.3 The bypass reach area including the canal trail that falls within the current project boundary.
- 4.2 Within 5 years of the Licensee's acceptance of a new FERC licensee, the Licensee will, in cooperation with the NCWRC and VDGIF, place into a conservation easement approximately 80 acres of project lands to enhance riparian habitat. The easement shall be written so as to not interfere with FERC jurisdiction in any manner as long as the project is licensed by FERC and the Licensee has access to perform necessary operation and maintenance activities. If within 5 years a suitable plan for this enhancement has not been developed and executed, the Licensee, NCWRC, and VDGIF will mutually determine an appropriate alternative to the 80-acre conservation easement.
- 4.3 To ensure continued public access to the project reservoirs through existing and planned recreational facilities in the event that the project ceases to be a federally licensed hydroelectric project, the Licensee agrees to negotiate and convey recreational easements to these recreational facilities within two years of the Licensee's acceptance of a new FERC license. However, these easements will only become effective in the event that the project ceases to be a federally licensed hydroelectric project. The Licensee agrees to negotiate the terms of the easement with the NCDENR, the NCWRC, the VDGIF, VDCR, the City of Roanoke Rapids, the RPLG and the LGA. Specific areas include all public boat and bank fishing areas, the two public recreational areas in North Carolina and the one public recreation area in Virginia.
- 4.4 The Licensee agrees to enter into good faith negotiations with the NCDENR, NCWRC the City of Roanoke Rapids, VDGIF, VDCR and the RPLG within two years of the Licensee's acceptance of a new license to explore options available to protect the current project boundary in the event that the project ceases to be a federally licensed hydroelectric project.

ARTICLE RC1 Recreation Enhancements

- 1.0 General
- 1.1 Goals – The intent of this article is to lay out a framework for improving recreational opportunities associated with the project.
- 1.2 This article addresses the responsibilities of the named parties for the following recreation enhancements, as described herein and in Tables RC1-1 and Table RC1-2, and as cost allocated below. Unless otherwise specifically noted, all costs are stated in 2002 dollars to be adjusted for changes in the CPI.

- 1.3 The Licensee shall contribute up to \$1,611,120 for the construction of these recreation enhancements as described herein and in Tables RC1-1 and RC1-2.
- 2.0 Recreation Improvements
- 2.1 Lake Gaston Day Use Area
 - 2.1.1 The Licensee shall construct the day use area described in Tables RC1-1 and RC1-3.
 - 2.1.2 The Regional Partnership of Local Governments (RPLG) shall apply for grant funding of up to \$91,350 for the construction of recreation enhancements 2.1 and \$7,040 enhancement 2.10.
 - 2.1.3 Specific enhancements are described in table RC1-3
 - 2.1.4 See paragraph 2.2.4 for operation and maintenance.
 - 2.1.5 If the RPLG is unable to obtain full grant funding within three years after the Licensee's acceptance of a new FERC license, Licensee shall proceed with the design, engineering and construction of a scaled down version of the Lake Gaston Day Use Area based on Licensee's funding commitment and any provided grant funding and shall have the facilities in operation within 1 year thereafter.
- 2.2 Roanoke Rapids Day Use Area
 - 2.2.1 The Licensee shall construct the day use area described in Tables RC1-1 and RC1-3.
 - 2.2.2 The City of Roanoke Rapids shall apply for grant funding of up to \$317,100 for the construction of recreation enhancements 2.2 and \$24,510 for enhancement 2.10.
 - 2.2.3 Specific enhancements are described in table RC1-3
 - 2.2.4 The Licensee shall develop in consultation with the City of Roanoke Rapids and the RPLG a long-term operation and maintenance plan for enhancements 2.1 and 2.2. The plan shall be completed by the time the facilities are completed per 2.1.5 and 2.2.6. This Long-term plan shall address the following:
 - 2.2.4.1 Trash pick-up and removal
 - 2.2.4.2 Hours of operation and fees to be collected.
 - 2.2.4.3 General guidelines for a recreational contractor to be included in a RFQ for said contractor.
 - 2.2.4.4 Guidelines for supervision for area activities and operation. Supervision shall include but not be limited to janitorial services, fee accounting and concession operation.
 - 2.2.4.5 Mowing and facility maintenance and repair will be performed by the Licensee as part of ongoing operation of the Dam facilities.

2.2.5 Days of operation

2.2.5.1 Enhancements 2.1 and 2.2 shall be operated on a full time basis from Memorial Day through Labor Day. Hours of operation shall be 0900 to sunset.

2.2.5.2 Enhancements 2.1 and 2.2 shall be operated on a limited basis from March 1 to Memorial Day and from Labor Day through the second full weekend in November.

2.2.6. If the City of Roanoke Rapids is unable to obtain full grant funding within three years after the Licensee's acceptance of a new FERC license, Licensee shall proceed with the design, engineering and construction of a scaled down version of the Roanoke Rapids Day Use Area based on the Licensee's funding commitment and any provided grant funding and shall have the facilities in operation within one year thereafter.

2.2.7 Operation and maintenance costs to the Licensee of the Day Use Areas 2.1 and 2.2 shall have an annual cap of \$70,000.

2.3 Lake Gaston Virginia Day Use Area

The Virginia Department of Conservation and Recreation (VDCR) shall assure that co-funding of up to \$300,300 is provided for recreation enhancement 2.3 (the Lake Gaston Virginia day use area – 2.3) and shall coordinate acquisition and construction of the facility. While VDCR will not manage and operate the facility, it will assure that a management and operational entity is in place before the facility is developed. Should it be determined that a suitable site can not be found on Lake Gaston for a Virginia day use area, then VDCR will look for other sites to enhance recreational access to the lake or the river upstream of the lake within Brunswick, Halifax, Mecklenburg and/or Charlotte counties, Virginia. The development of another park site to meet the needs of those living in the proximity of the lake will also be considered. Any outdoor recreation facility developed will be in accordance with the 2002 *Virginia Outdoors Plan* with no additional funding from the Licensee. Licensee agrees to provide its share of funding for the facility within 11 years of issuance of a new FERC license to Licensee. The VDCR agrees to have the facility in operation within 12 years of date of the Licensee's acceptance of a new FERC license.

2.4 Roanoke Rapids Tailrace Fishing Area

2.4.1 Licensee will provide for the public safe access to the bypass reach within 4 years of the Licensee's acceptance of a new license (enhancement 2.4) for the lawful uses and enjoyment of the resources therein. The Licensee recognizes the desire to restore the recreational fishery value of the bypass reach. However, the Licensee also recognizes that the bypass reach is an inherently dangerous reach of the Roanoke River. Though the Licensee agrees to provide safe, public access, the Licensee in no way validates the safety of the area, and as a part of the public safety plan will post signs at any new access points warning the public of the danger in using the area.

- 2.4.2 The Licensee shall make improvements to the existing tailrace fishing area on the south side of the tailrace within one year of accepting a new FERC license. Licensee shall be responsible for maintenance of this area.
- 2.4.3 The total cost to the Licensee for this enhancement shall not exceed \$150,000.
- 2.5 Water to Land and Bank Fishing Sites
 - 2.5.1 The Licensee agrees to construct and have in operation Phase I sites from Table RC1-2 within one year of the Licensee's acceptance of a new FERC license. Costs to the Licensee shall not exceed costs referenced in the table.
 - 2.5.2 The Licensee agrees to construct and have in operation Phase II sites from Table RC1-2 within 12 years of acceptance of a new FERC license. Costs to the Licensee shall not exceed costs referenced in the table.
 - 2.5.3 The Licensee agrees to construct and have in operation Phase III sites from Table RC1-2 within 22 years of acceptance of a new FERC license. Costs to the Licensee shall not exceed costs referenced in the table.
 - 2.5.4 The NCWRC and the VDGIF agree to maintain facilities in 2.5.1, 2.5.2 and 2.5.3 on a schedule currently used by the agencies for similar facilities. Maintenance shall include the appropriate level of trash removal.
 - 2.5.5 The water to land facilities shall have:
 - 2.5.4.1 One composting type restroom facility
 - 2.5.4.2 Several durable, non-portable picnic tables.
 - 2.5.4.3 The Licensee on a monthly schedule from April through October shall maintain the facilities.
 - 2.5.6 Upon discovery that enhancements listed in table RC1-2 are not feasible, Licensee agrees to substitute development of a similar mutually agreed upon area in consultation with the NCWRC or VDGIF.
- 2.6 Hawtree Creek Boat Landing
 - 2.6.1 The Licensee shall provide funding up to \$210,000 and the NCWRC shall provide co-funding of up to \$105,000 for recreation enhancement 6. Licensee agrees to provide its share of funding for the facility within 1 year of issuance of a new FERC license. The NCWRC agrees to have the facility in operation within 2 years of date of the Licensee's acceptance of a new FERC license.
 - 2.6.2 The Licensee shall provide to the NCWRC a sum of \$5,000 per year per boat landing on Roanoke Rapids Lake and Lake Gaston for operation and maintenance of 6 boat landing sites. This sum shall not exceed an annual cost of \$30,000 per year. The NCWRC will be responsible for operation and maintenance of the facilities with no additional funding from the Licensee.

- 2.7 Boat Landing Lighting Licensee agrees to construct and have in operation recreation enhancement 7 within 1 year of date of the Licensee's acceptance of a new FERC license. The NCWRC will be responsible for all operation and maintenance costs associated with this enhancement once construction is complete.
- 2.8 Lake Gaston Mile Marker Buoys Licensee agrees to construct and have in operation and maintain Recreation Enhancement number 8 within 1 year of date of the Licensee's acceptance of a new FERC License.

3.0 Operation Funding

Licensee shall provide to the NCWRC \$1000 per year for the life of the license for the purpose of community outreach. The funding shall go directly to support outreach programs related to Lake Gaston or Roanoke Rapids Lake.

4.0 Signage

The Licensee agrees to place appropriate signage at each recreation site. The signage shall include at a minimum the lake and associated recreation site name, FERC project number and required FERC public access language. Signage will be placed at the completion of the individual site enhancement.

- 4.1 Costs of signs shall not exceed \$1000 per site for the sites.
- 4.2 Signs shall be placed at all boat landings (12), all bank fishing sites (13) and all day use areas (3).
- 4.3 Signs shall be placed within 2 years of Licensee's acceptance of a new FERC license or within 6 months of completion of construction of a newly developed enhancement.
- 4.4 The Licensee in consultation with the NCWRC, VDGIF and VDCR may determine that it is more effective for the sign cost allotment be paid to the agency versus Licensee installation.

5.0 Paddler Recreation

All issues related to down-stream paddler recreation are addressed in Article RC2 of this agreement.

TABLE RC1-1

Description	Total Est. Costs	Licensee Contribution	Grant or Co-Fund
2.1. Lake Gaston Day Use Area Upgrade (See table RC1.3 for details)	175,350	84,000	91,350
2.2. Roanoke Rapids Lake Day Use Area (see Table RC 1.3 for details)	737,100	420,000	317,100
2.3. Lake Gaston Virginia Day Use Area	772,800	472,500	300,300
2.4. Roanoke Rapids Tailrace Fishing Area (includes bypass reach)	150,000	150,000	0
2.5. Two water to land facilities and 13 bank fishing sites	168,000	168,000	0
2.6. Construct Hawtree Creek Boat Landing	210,000	105,000	105,000
2.7. Provide Lighting at 6 NC Boat Landings	6,300	6,300	0
2.8. Lake Gaston Mile Marker Buoys	32,500	32,500	0
2.9. Design and Engineering for Above (exclude items 3 and 6)	105,000	105,000	0
2.10. Allowance for Uncertainty and Design Refinements (excludes items 3 and 6)	197,162.50	124,320	62,842.50
	2,554,212.5	1,667,620	876,592.5

TABLE RC1-2 Water-to-Land Areas and Bank Fishing Sites

Lake	Description	Development Phase	Estimated Cost (2002\$)
Gaston	Water-to-land area on small island near Nocarva Marina	I	21,000
Gaston	Tailrace fishing area at Lake Gaston Dam, expand area towards dam, provide access, improve road to area.	I	10,500
Gaston	Bankfishing area at north end of Lake Gaston Dam	I	10,500
Gaston	Bankfishing area (floating dock, access path) at NCWRC boat landing at Stonehouse Creek	I	24,000
Gaston	Area where 615 crosses Miles Creek.	I	10,500
Roanoke Rapids	Bypass reach area	I	4,500

Roanoke Rapids	Thelma Landing boat ramp, install floating fishing pier.	II	24,000
Roanoke Rapids	North end of Roanoke Rapids dam	II	10,500
Gaston	Water-to-land facility on Goat Island	II	21,000
Roanoke Rapids	Area on north side of Roanoke Rapids Lake	III	10,500
Gaston			
Gaston	Area near Kerr Dam Tailrace Landing Park	III	10,500
Total			157,500

Development Phases:

Phase I - within 1 year after acceptance of a new FERC license by Licensee.

Phase II - within 12 years after acceptance of a new FERC license by Licensee.

Phase III - within 22 years after acceptance of a new FERC license by Licensee.

TABLE RC1-3
Recreational Enhancements

1. Lake Gaston Dam Day Use Area (upgrade): Estimate	Detailed Cost
Circular gravel drive with 49 wheel stops	\$35,280
25 new tree plantings	\$6,615
New swimming area 30'x200'	\$3,675
15-foot extension to the existing fishing pier	\$2,205
12 new picnic tables	\$6,930
10 new trash cans	\$1,785
2 new horseshoe pits	\$315
Convert existing slab to basketball court includes resurfacing and painting	\$3,465
Resurface slab for trike lot	\$1,890
Construct picnic pavilion with changing rooms	\$89,355
Install a small sand play area (no equipment) with timber border	\$420
Handicapped path along beach to pier (4' wide paved Sidewalk	\$5,565
Entry sign	\$525
Information kiosk	\$1,575
Toilets (leased portable toilets)	\$0
Allowance for mulching and seeding of the area	\$15,750
Total for area	<u>\$175,350</u>

2. Roanoke Rapids Lake Peninsula Park Day Use Area:	Detailed Cost
Additional clearing and grubbing	\$8,400
Two land paved road to site (this includes clearing & grubbing for road access and for peninsula and undergrowth clearing)	\$56,070
Extension of canal trail through woods (6'x8' wide, mulched area)	\$19,950
Nature trail and fitness loops	\$40,950
Gravel surface parking for 100 cars	\$28,455
Renovation/expansion of beach area	\$17,010
Information kiosks	\$4,725
5 trash cans	\$945
Two horseshoe pits	\$315
Frisbee™ golf course	\$630
14 new picnic tables	\$8,085
3 single sheltered tables for family outings (includes slab, tables, covered shelter)	\$70,875
Covered picnic pavilion for use by up to 40 people	\$70,875
Concrete area 50'x90' plus walkway	\$34,440
Restroom facility, changing area, and showers near beach area	\$91,400
Covered picnic pavilion with restroom area, can accommodate up to 100 people and includes picnic tables, and tie-ins to county sewage and water	\$183,700
Concession stand (does not include kitchen equipment)	\$23,100
Allowance for children's play equipment with conventional and modular playground equipment	\$29,400
Allowance for sanded volleyball court	\$735
Handicapped accessible fishing pier	\$12,390
6' chain link fence and additional fencing with gate to separate public area from NCP private area	\$11,550
Security lighting	\$15,750
Trailer/RV site with electric, water, and sewer hookup	\$7,350
Total for area	<u>\$737,100</u>

ARTICLE RC2 Lower Roanoke River Recreation Flows

1.0 Goals

1.1 This article is intended to enhance conditions for recreational paddling between Highway 48 and the Weldon boat ramp by improving public information, and increasing the reliability and frequency at which water elevation and flow conditions are maintained within a desirable range.

1.2 General

1.2.1 Preferred flows for whitewater boating in the Weldon reach of the lower Roanoke River vary from about 2000 cfs to 3300 cfs. Concurrent with these flows, the stage for the Halifax USGS gage should ideally be less than 20 feet.

1.2.2 For the purposes of this article the Cooperative Management Team (CMT) shall consist of one representative from the Licensee, the Carolina Canoe Club, the NCDENR and one representative from the City of Roanoke Rapids and Halifax County area as appointed by these jurisdiction's City or County Manager.

1.2.3 The provisions of this article shall be superceded by articles FL2, FL3, FL4, FL5, FL6, and FL7 if they are in conflict. Any changes to the listed articles that result in an effect on recreation flows as described in this article shall be addressed per §§ 7 and 8 of this article.

2.0 Advanced Planned Releases

2.1 The licensee shall provide recreational flow releases and long term advance notice for two weekends in July, one weekend in August and Labor Day weekend (for a total of four weekends). One of the July weekends shall be the weekend closest to the Fourth of July.

2.2 The Licensee shall post these weekend dates on its web page by April 1 each calendar year.

2.3 The Licensee shall be required to provide releases for one weekend day only, if the USACE weekly declaration is greater than 6,000 cfs. The single weekend day release shall be designated on the April 1 notification.

2.3.1 Of the four planned weekends, the single day planned releases (when flow greater than or equal to 6000 cfs but not in flood control) shall be two Saturdays and two Sundays.

2.4 If a planned weekend flow release is cancelled due to emergencies or flood control, the Licensee shall make a good faith effort to reschedule another planned weekend release.

2.5 The Licensee shall post the planned recreational flow release and times that the scheduled flow will be provided on the Licensee's web page by 10:00 a.m. the Friday preceding the recreational flow release.

3.0 Short-term Planned Releases

- 3.1 During weekends other than those for which recreational flows are planned in advance, the Licensee shall provide recreational flow releases for at least one of the two weekend days when the weekly declaration is less than 6000 cfs, two days of recreational flow when the weekly declaration is = or <4000 cfs.
- 3.2 When weekly flow declarations are equal to or greater than 6,000 cfs the Licensee shall not be obligated to provide recreational flows during the weekend.
- 3.3 The scheduled flow and times that the scheduled flow will be provided shall be posted on the Licensee's web page by 10:00 a.m. the Friday preceding the recreational flow release.
- 3.4 The days of recreational flow releases shall occur between June 16 and October 31 of each calendar year.

4.0 Dam Flow Scheduling

- 4.1 On advanced planned release weekends scheduled on April 1 of each year, the Licensee shall end peaking operations:
 - 4.1.1 By 2000 hours on Friday on weekends when the weekly declaration is below 6000 cfs. Peaking may commence again at 2000 hours Sunday.
 - 4.1.2 By 1800 hours on the preceding Friday or 1600 hours on the preceding Saturday prior to the advanced planned release when the weekly declaration is equal to or above 6000 cfs. Peaking may commence again at 2000 hours the day of the advanced planned release.
- 4.2 On short term planned release weekends,
 - 4.2.1 When the weekly declaration is >4000 but < 6000 cfs, the Licensee shall end peaking by 1600 hours on Saturday. Peaking may commence again at 2000 hours Sunday of the short term planned recreational flows.
 - 4.2.2 When the weekly declaration is = or <4000 cfs, the Licensee shall end peaking by 2000 hours on Friday and may commence peaking again on Sunday at 2000 hours.

5.0 Emergencies

- 5.1 Licensee shall not be required to provide recreational flows during an electrical demand emergency or if the USACE Kerr facility is in a flood control mode.
- 5.2 During droughts, the Licensee works in cooperation with the USACE to provide lower Roanoke River flows that balance the water demand needs of all basin stakeholders. Under a declared drought, the Licensee shall release flows less than 2000 cfs when so directed by the USACE.

6.0 Flow Information

The Licensee shall provide the following:

- 6.1 A web page that addresses paddler flows
- 6.2 A daily update of predicted load following conditions for the next two days by 10:00 a.m. for that day and the next day.
- 6.3 A link to the USGS Roanoke Rapids flow and gage data
- 6.4 Either a link to the USGS Halifax gage or a web cam view of the Weldon Rapids
- 6.5 The dates of the long range planned weekend releases
- 6.6 The USACE weekly flow declaration.

7.0 Monitoring, Reporting and Review of Recreational Releases

- 7.1 The Licensee shall prepare an annual report of the weekend recreational flows for 9 recreational releases. This report shall include:
 - 7.1.1 The dates of these 9 weekend recreational release (indicate which dates are advanced planned versus short-term planned notice).
 - These 9 weekends for the report shall include 1 in June and two in July, August, September and October and shall be inclusive of the 4 advanced planned releases.
 - 7.1.2 The weekly declarations affecting each recreational weekend release.
 - 7.1.3 The time that peaking ceased on the day preceding each weekend recreational release day.
 - 7.1.4 The Halifax gage or web cam readings for 9:00 AM, 12:00 PM and 3:00 PM on the first day of each of the 9 reported recreational weekend release (the first day following peaking operation)
- 7.2 The Licensee shall provide each annual report to the NCDWR, Carolina Canoe Club and FERC by no later than February 15 of the year following each season of recreational releases. The report will also be posted on the web site where recreational flow information is listed.
- 7.3 Within one year of the Licensee acceptance of a new FERC License, the CMT for this article shall meet to establish indicators that determine whether the objectives of this article are being met or modifications of recreational releases are needed.
- 7.4 The Licensee shall convene a meeting of the CMT for this article by February 15 of the year following the fifth year of recreational releases.
 - 7.4.1 The purpose of the meeting will be to review the implementation of enhanced recreational flows and identify any possible improvements.
 - 7.4.2 These meetings will be repeated every five years for the term of the license.
 - 7.4.3 The Licensee shall keep minutes of these meetings and finalize them after review and approval of all attendees.

- 7.5 The Licensee shall make appropriate changes to recreational flow releases if as a result of the reports reviewed and discussions at the CMT meetings a consensus of the CMT agree that recreational releases are not achieving the objectives of this article.
 - 7.5.1 Adjustments to flow changes shall be established by the CMT.
 - 7.5.2 The Licensee adjustments to flow shall not be greater than described in paragraph 8.0 of this article.
 - 7.5.3 Adjustments where appropriate shall be made stepwise toward limits described in § 8.0.
- 7.6 If after a 5-year review cycle the CMT determines that no further flow enhancements for whitewater recreation can be made, the reporting requirements of this § 7 shall be terminated.
- 7.7 If changes to the river regulation rules (USACE Kerr Reservoir) or adaptive changes made through FL3 or FL4 occur the Licensee shall convene a joint CMT to address effects of these changes to recreational releases, and seek an approach for modifying operations that can meet the objectives of FL3 and/or FL4 while retaining the enhancements of RC2 as much as possible.

- 8.0 Limitations to the Licensee's Responsibilities
- 8.1 At the 5-year meeting, adjustments will be made only if the preponderance of evidence indicates (and agreed to by consensus) a significant improvement would be made for paddler use of the resource.
- 8.2 Maximum adjustments that shall be required:
 - 8.2.1 Licensee shall not be required to cease peaking operations on any Friday prior to 1700 hours local time.
 - 8.2.2 Licensee shall not be required to cease peaking operations on any Saturday prior to 1600 hours local time.
- 8.3 It is noted that if as a result of the impending USACE Roanoke River Basin 216 study changes the guide curve or rule of operation, (or for any other reason the USACE changes the guide curve) the CMT shall meet within 6 months of implementation of new USACE operational rules and implement an adjusted agreement within 1 year of the USACE rules implementation date.

- 9.0 Cost Sharing
- 9.1 For the purpose of ensuring the flows, hardware and reports to FERC, the Licensee is fully responsible for ensuring the conditions of this agreement are met.
- 9.2 For the purpose of a shared project to enhance recreational opportunities in Halifax County North Carolina,
 - 9.2.1 If a web cam is installed, the Licensee and the Halifax Tourism Department shall cost share the installation costs up to \$5000 each. The Licensee shall provide all funding that exceeds \$10,000.

9.2.2 Annual maintenance of the web cam shall be shared equally between the Licensee and the Halifax Tourism Department.

10.0 Schedule of Implementation

The Licensee shall provide the recreational flow releases within 30 days of the acceptance of a new FERC license. The Licensee agrees to begin the gage or web cam production on the web page within six months after acceptance of a new FERC license.

ARTICLE RC4 Cultural Resources

This article is intended to establish a provision for the duration of the new license to protect and preserve the historic resources within the project boundary.

The Licensee shall develop a Historic Properties Management Plan (HPMP) in consultation with the North Carolina State Historic Preservation Officer (NCSHPO), and the Virginia State Historic Preservation Officer (VSHPO). The HPMP shall be consistent with the Programmatic Agreements executed with the NCSHPO and the VSHPO. The HPMP shall provide for the protection of cultural resources. It shall include monitoring of erosion at archeological sites previously identified as potentially eligible for the National Register of Historic Places and necessary protection measures. The HPMP shall include measures to identify and protect cultural resources potentially affected through the construction of recreational facilities identified in Article RC1 of the Settlement Agreement. The HPMP shall also include measures to protect cultural resources potentially affected by future changes in project operations. The HPMP shall address protection of the Roanoke Canal Trail, Navigation Canal and power canal and address a working relationship with the Roanoke Canal Commission. The plan will include preserving and protecting the canals and canal structures. It shall also allow for the planning and development of future enhancements for recreational and cultural opportunities associated with the canals and canal trail. Any conservation easements that are developed within the project boundary, in the State of North Carolina, as a result of relicensing negotiations shall contain appropriate language to preserve historic properties.

GENERAL PROCEDURES

1 Definitions

- 1.1 **“Commission”** or **“FERC”** shall mean the Federal Energy Regulatory Commission.
- 1.2 **“General Procedures”** shall mean the provisions of the Comprehensive Settlement Agreement that are not contained in the Proposed License Articles in Appendix A, the Technical Settlement in Appendix B, and the list of Parties and Primary Contacts in Appendix C.
- 1.3 **“License”** shall mean the regulatory authorization for construction, maintenance, and operation of a hydroelectric project subject to the jurisdiction of FERC pursuant to the Federal Power Act, 16 U.S.C. §§ 791 et seq. (FPA).
- 1.4 **“Licensee”** shall mean Virginia Electric and Power Company doing business as Dominion Virginia Power/Dominion North Carolina Power, the legal entity to which the Commission issues the new License for the Project and any successors in interest.
- 1.5 **“License Provision”** shall mean any condition, prescription, requirement, holding, reservation of authority, or article included into the new license for the Roanoke Rapids and Gaston Dam Project by the Commission.
- 1.6 **“New License”** shall mean the license issued by the Commission to the Licensee pursuant to Section 15 of the FPA for the continued operation of the Project, which shall take effect upon the Licensee’s acceptance thereof.
- 1.7 **“Offer of Settlement”** shall mean an offer of settlement to be filed with FERC pursuant to 18 C.F.R. § 385.602, which offer shall be comprised of this Settlement Agreement, including the Proposed License Articles and the Technical Settlement.
- 1.8 **“Party”** or **“Parties”** shall mean the entities listed in Article GP1, Section 2.0 of the Technical Settlement.
- 1.9 **“Project”** shall mean the Roanoke Rapids and Gaston Dam Project, licensed to the Licensee as FERC Project No 2009.

- 1.10 **“Proposed License Article”** shall mean the terms and conditions set forth in Appendix A of this Settlement Agreement that the Commission should include, without modification, in the new license issued to the Licensee for the continued operation of the Project.
- 1.11 **“Settlement Agreement”** shall mean the entirety of this Comprehensive Relicensing Settlement Agreement, including the General Procedures, Proposed License Articles in Appendix A, the Technical Settlement in Appendix B, and the list of Parties and Primary Contacts in Appendix C.
- 1.12 **“Technical Settlement”** shall mean the provisions included in Appendix B, which reflect the detailed agreements among the Parties with respect to technical matters, including Flow, Fish, Lake and Recreation/Historic Properties matters. These provisions serve as the basis for and are incorporated as appropriate in the Proposed License Articles.

2 **General Provisions**

- 2.1 Scope of the Settlement Agreement. The Parties agree that this Settlement Agreement, including General Procedures, the Proposed License Articles and the Technical Settlement, resolves all issues among the Parties associated with, and constitutes a comprehensive settlement of, the docketed Project No. P-2009, relating to issuance of a New License for the Project. This Settlement Agreement sets forth the Licensee’s obligations, subject to reserved mandatory and prescriptive authority, for the protection, mitigation and enhancement of ecological, environmental, cultural, and recreational resources affected by the Project under a new license issued by FERC. This Settlement Agreement also establishes mutual agreements and obligations by which the Parties intend to be bound outside the New License.
- 2.2 Structure of the Settlement Agreement. This Settlement is organized into four parts: (i) the General Procedures, (ii) Appendix A containing the Proposed License Articles, (iii) Appendix B, containing the Technical Settlement, and (iv) Appendix C containing a list of the Parties and Primary Contact names and addresses.
- 2.3 Effective date and term of Settlement Agreement and New License. This Settlement Agreement shall become effective upon execution by all Parties. The Settlement Agreement shall remain in effect for the term of the new license issued

by the Commission for the Project and for any annual license issued subsequent thereto, unless terminated pursuant to Sections 5.6 or 11. It is agreed that the obligations of the Licensee under this Settlement Agreement shall extend for a license term of 40 years.

- 2.4 Effective date of settlement obligations. Unless otherwise expressly provided in this Settlement Agreement, including the Technical Settlement, the obligations of the Licensee shall become effective upon acceptance by the Licensee of a new license for the Project, except to the extent such obligations may be stayed by FERC order.
- 2.5 Offer of Settlement. The Parties agree that within 30 days of the effective date of this Settlement Agreement, the Licensee shall file this Settlement Agreement as an Offer of Settlement with FERC pursuant to Rule 602 of the Rules of Practice and Procedure, 18 C.F.R. § 385.602 (2002).
- 2.6 Enforceability.
- 2.6.1 It is the intent of the Parties that the Proposed License Articles set forth in Appendix A of this Settlement Agreement shall be enforced by FERC, as supplemented by other means of enforcement provided in Section 6.3.2 and other resource agencies that have concurrent jurisdiction to enforce such articles. Inasmuch as some of the terms of the Settlement Agreement are referenced in the Proposed License Articles, it is the intent of the Parties that the Settlement Agreement shall be included as an appendix to the License Order. The Offer of Settlement shall request FERC to incorporate all Proposed License Articles, without modification, into the new license for the Project and to identify all Proposed License Articles, if any, that are unenforceable by FERC. The Parties agree that if FERC does not expressly identify a Proposed License Article as unenforceable, they will proceed as though such provision is enforceable by FERC.
- 2.6.2 All terms of this Settlement Agreement, including the terms of the Technical Settlement, that are outside FERC's jurisdiction shall not be incorporated into the new license for the Project and shall be enforced through remedies available under applicable State or Federal law, as set forth below.
- 2.7 Governing Law. All provisions of this Settlement Agreement that are incorporated into the New License may be enforced as provided in Section 6.3.2. The New License shall be governed solely by the Federal Power Act and other

applicable sections of federal law, except that license conditions imposed pursuant to 33 U.S.C. § 1341 shall be governed, as appropriate, also by the Federal Water Pollution Control Act (as amended), 33 U.S.C. § 1251 et seq., and implementing state law. All other provisions of this Settlement Agreement, including the Technical Settlement, that are not enforceable under the New License are contractual in nature. Any provisions of this Settlement Agreement over which a federal or state agency has jurisdiction shall be governed, construed, and enforced in accordance with the statutory and regulatory authorities of such agency. By executing this Settlement Agreement, no federal agency or other party is consenting to the jurisdiction of a state court unless such jurisdiction otherwise exists. All activities undertaken pursuant to this Settlement Agreement shall be in compliance with all applicable law.

3 Settlement Commitments

- 3.1 The Parties agree to support the issuance of the New License, water quality certification and other agency approvals that are consistent with the terms of this Settlement Agreement. This support shall include reasonable efforts to expedite the National Environmental Policy Act (NEPA) process undertaken by FERC as well as any regulatory approvals that may be needed to implement provisions of the Settlement Agreement; provided that any Parties who are governmental agencies are not by this commitment compromising or relinquishing any legal authority or process requirements they may have in those situations where they may be the permitting agency. For those issues addressed herein, the Parties agree not to propose or otherwise communicate to FERC or to any other federal or state resource agency with jurisdiction directly related to the relicensing process any comments, other than ones consistent with the terms of this Settlement Agreement.

4 Adoption by FERC without Modification.

- 4.1 The parties have entered into this Settlement Agreement with the express expectation and condition that FERC will approve the Settlement Agreement as an Offer of Settlement and issue a New License for the Project that incorporates, without modification, the Proposed License Articles in Appendix A.
- 4.2 The Parties agree that if FERC approves the Offer of Settlement and incorporates the Proposed License Articles into the New License without modification, they will not seek rehearing of the FERC order granting a new license for any issues covered by this Settlement Agreement, or support in any way any such request for rehearing by any non-Party to this Settlement Agreement.

5 Rehearing and Judicial Review.

- 5.1 The Parties respectfully request that FERC adopt the Proposed License Articles without material modification or omission. Each term, including Appendices A and B, is in consideration of each other term. Such modification may materially alter the bargained-for benefits of one or more Parties, resulting in their withdrawal or, in the worst case, the termination of the Settlement Agreement. If FERC issues a New License that contains an article, omits a Proposed License Article, or otherwise takes action that is materially inconsistent with the terms of this Settlement Agreement, the Settlement Agreement shall be deemed modified to conform to the New License, only if no Party objects thereto within the time allowed for rehearing. Absent such objection, the Parties will be bound by the terms of this Settlement Agreement as modified and such terms shall be enforceable as described in Section 2.6 of this Settlement Agreement.
- 5.2 If any Party objects to an article, or the omission of an article, in the New License that is materially inconsistent with the terms of this Settlement Agreement, the Agreement shall not be conformed to FERC's order, and all Parties shall engage in Consultation in accordance with Section 6.2 in an attempt to reach consensus on (i) conforming the Settlement Agreement to the New License or (ii) filing a request for rehearing of the New License. If consensus has not been reached 15 days prior to the due date for the request for rehearing, any Party may file a request for rehearing of the New License to challenge the material modification, which no other Party shall oppose. All Parties shall support the request for rehearing to the greatest extent possible. Any Party filing for rehearing is authorized to state affirmatively that no Party opposes the request.
- 5.3 The filing of a request for rehearing shall not terminate Consultation, which shall continue, if necessary, for the full 90-day period, mindful of the demands on parties involved in a request for rehearing. If during the 90-day period the Parties unanimously consent to modify the Settlement Agreement to conform with the New License, the filing Party shall withdraw its request for rehearing.
- 5.4 After the conclusion of Consultation, and unless and until a final decision, as defined in Section 10.1, alters FERC's modification to the Proposed License Articles, the Settlement Agreement shall temporarily be deemed amended by FERC's modification if supported by (i) the Licensee and (ii) each resource agency with jurisdiction over a resource that is a subject of the disputed license article or omission. A resource agency shall be considered to have jurisdiction over a resource if a characteristic of the resource is within the agency's statutory mandate and with respect to state agencies, the resource is within the agency's geographic jurisdiction.

- 5.5 Any Party may file a request for rehearing of issues arising under the FERC order issuing the New License that are not deemed to be related to the Settlement Agreement, provided that: (i) the Party shall notify all other Parties of its intention by email or facsimile at the earliest practicable time; and (ii) the Parties will undertake the Consultation process in Section 6.2 if any other Party disputes the request as materially inconsistent with the Settlement Agreement.
- 5.6 If FERC's modification of the Proposed License Articles, as modified or affirmed by any final agency or judicial action, does not have the support of both the Licensee and each resource agency with jurisdiction over the resource that is the subject of the disputed license article, this Settlement Agreement shall be terminated. If FERC's modification of the Proposed License Articles, as modified or affirmed by any final agency or judicial action, has the support of both the Licensee and each resource agency with jurisdiction over the resource that is the subject of the disputed license article, the Settlement Agreement shall be deemed amended to conform to the New License. Any Party who does not support the modification of the Proposed License Articles, as modified or affirmed by any final agency or judicial action, may seek withdrawal pursuant to Section 9.
- 6 Dispute Resolution.** Except where otherwise specifically provided in the Settlement Agreement, disputes arising under or related to the Settlement Agreement or the License shall be resolved as follows:
- 6.1 The Parties will make best efforts to reach consensus and resolve any dispute arising under or related to the Settlement Agreement and the New License. A resolution based on consensus shall have either the unanimous support of all designated and participating Parties, or at least no opposition from any Party. In the event a consensus cannot be reached, each Party shall state the reason for its position in writing. In the event of a conflict between or among decisions reached by separate Cooperative Management Teams, the Licensee, or any other Party, may undertake informal consultation in advance of invoking dispute resolution procedures.
- 6.2 Consultation. In the event any dispute arises, the Parties agree to engage in good faith negotiations for a period of at least ninety (90) days in an effort to resolve the dispute, except that in emergency situations, a Party may, for good cause, seek relief prior to the expiration of the 90-day period. During the ninety-day period, any Party may request the services of a neutral mediator to assist in resolving the dispute. The disputing Parties will jointly select such mediator and, if mediation is acceptable to all of them, before engagement, will reach an agreement on how to cover the costs of such services in an appropriate manner.

6.3 Remedies. If after engaging in Consultation pursuant to Section 6.2, the Parties have not reached consensus on the resolution of a dispute, the Licensee shall call the parties together to resolve the dispute under one of the following procedures, depending on the type of dispute at issue:

6.3.1 *Implementation Disputes*. An Implementation Dispute is the failure to reach consensus on any decision or action required to implement the Settlement Agreement. It does not include any dispute that relates to the Licensee's compliance with any duty arising under the New License, any Party's compliance with its duties under the Settlement Agreement, or any dispute that relates to a proposed amendment to the Settlement Agreement or the New License.

6.3.1.1 If an Implementation Dispute is not resolved after Consultation, a resolution of that dispute will become effective if supported by (i) the Licensee and (ii) each resource agency with jurisdiction over the resource affected by the decision, as defined in Section 5.4. Any other Party who does not support the resolution may seek resolution before an agency or court with jurisdiction over the dispute or, upon consent of the disputing Parties, seek resolution of the Implementation Dispute through binding arbitration. The exclusive remedy in arbitration shall be to identify from the Parties' written positions as stated in Section 6.1 the resolution that best achieves the goals of the article under which the dispute arose. The resolution described in this Section shall remain in effect during the pendency of arbitration.

6.3.1.2 If an Implementation Dispute is not resolved after Consultation, and the Licensee and resource agencies with jurisdiction over the affected resource do not agree on a mutual resolution, all disputing Parties shall seek resolution of the Implementation Dispute through binding arbitration unless any resource agency with jurisdiction over the affected resource objects to binding arbitration on the ground that such resource agency by law or policy cannot participate in binding arbitration. Any Party is free not to participate in arbitration provided it agrees to abide by the outcome. If an objection to arbitration is made by a resource agency with jurisdiction over the affected resource who by law or policy cannot participate in arbitration, the matter shall not go to arbitration, any Party may seek resolution before an agency or court with jurisdiction over the dispute. The exclusive remedy in arbitration shall be the resolution, selected from the Parties'

positions as stated in Section 6.1, that best achieves the goals of the article under which the dispute arose, and a plan for its implementation.

- 6.3.2 *License Compliance Dispute.* A License Compliance Dispute relates to the Licensee's compliance with any obligations arising under the New License. If a Party believes that the Licensee has failed to perform any of its obligations under the New License, the Licensee shall, upon notice, call together the interested Parties to engage in Consultation pursuant to Section 6.2, unless any other Party has initiated Consultation, to (i) determine whether noncompliance has occurred, and, (ii) in the event of noncompliance, establish a time in which the Licensee must cure the noncompliance. If the License Compliance Dispute is not resolved at the conclusion of Consultation, or if, in the event of noncompliance, the Licensee has not cured the failure within the established time, any Party may petition or otherwise request FERC to enforce the license article with which the Licensee is alleged to have failed to comply. If FERC affirmatively declines to enforce a license article or fails to act within a reasonable period of time after a petition or other request to enforce has been filed, which period of time shall be no less than six months, a Party may seek specific performance of the analogous term of the Settlement Agreement, or other relief, from any agency or court with competent jurisdiction over the dispute.
- 6.3.3 *Settlement Agreement Compliance Dispute.* A Settlement Agreement Compliance Dispute relates to any Party's compliance with any obligation arising under the Settlement Agreement that is not contained in or enforceable under the New License, including a Party's failure to act or a Party's abuse of discretion in performing such duty. In the event of a Settlement Agreement Compliance Dispute, the Licensee shall, upon notice, call together the interested Parties to engage in Consultation pursuant to Section 6.2 to (i) determine whether noncompliance has occurred, and, (ii) in the event of noncompliance, establish a time in which the offending Party must cure the noncompliance. If the Settlement Agreement Compliance Dispute is not resolved at the conclusion of Consultation, or if, in the event of noncompliance, the offending Party has not cured the failure within the established time, any Party may seek resolution before any agency or court with competent jurisdiction over the matter.

6.3.4 *Amendment Dispute.* An Amendment Dispute is a dispute related to any Party's proposal to amend the Settlement Agreement or the New License. A proposal to amend the Settlement Agreement shall take effect only as provided in Sections 7, 8, or 9, as appropriate.

6.3.5 The Parties agree that damages at law are inadequate. No party shall be liable in damages for any breach of this Settlement Agreement, any performance or failure to perform an obligation imposed by this Settlement Agreement, or any other cause of action arising from this Settlement Agreement.

7 Amendments to the Settlement Agreement.

7.1 Except as provided herein, nothing in this Settlement Agreement is intended to limit the Parties' ability to amend or modify this Settlement Agreement. The Party seeking an amendment shall provide notice pursuant to Section 13.5 of its proposal to amend the Settlement Agreement. Each other Party shall, within 30 days of the notice date, provide the proposing Party with a written confirmation of its consent to or rejection of the proposal to amend the Settlement Agreement. If a Party does not respond within the 30-day period, that Party shall be deemed to have rejected the request to amend the Settlement Agreement.

7.1.1 If the proposed amendment has the unanimous consent of the Parties and is not materially inconsistent with the New License, it shall go into effect upon execution by every Party.

7.1.2 If the proposed amendment is materially inconsistent with the New License, but has the unanimous support of every Party, the Parties shall seek modification of the New License, and any related permits or authorization, to conform with the proposed amendment pursuant to the provisions of Section 8. The amendment shall not go into effect until all authorizations, including the New License, are conformed to the amendment of the Settlement Agreement.

7.1.3 If any Party opposes the proposed amendment within 30 days after receiving notice, the Parties shall engage in Consultation pursuant to Section 6.2. If at the end of Consultation, the Parties have not reached unanimous consent with respect to the proposed amendment, the proposed amendment shall not go into effect.

8 License Amendments.

- 8.1 Nothing in this Settlement Agreement is intended or shall be construed to affect or limit the right of Licensee to seek amendments of the New License, provided that (i) Licensee may seek a Project license amendment that would involve a material modification to this Settlement Agreement only if the Licensee demonstrates the request is founded on significant new information not known and that could not have been reasonably known as of the date of issuance of the New License, and (ii) the Licensee has complied with the requirements of Section 7 to amend the Settlement Agreement, including, if necessary, engaging in Consultation pursuant to Section 6.2. An amendment to the New License that materially affects the Settlement Agreement shall not proceed unless it has the unanimous consent of all Parties. Licensee shall not be required to comply with this 90-day Dispute Resolution period if it believes an emergency situation exists or if required to meet its responsibilities under applicable law or an order of an agency with jurisdiction over Licensee.
- 8.2 Licensee may file for an amendment to the New License that is not deemed to be related to the Settlement Agreement, provided that: (i) the Licensee shall notify all Parties of its intention by email or facsimile at the earliest practicable time, and (ii) the Parties will undertake the Consultation process set forth in Section 6.2 if any other Party believes that the amendment is a material modification of the Settlement Agreement.

9 Reopeners.

- 9.1 Any Party may seek to invoke or rely upon any reopener article contained in the New License for the purpose of seeking an amendment to the New License with respect to any matter covered by this Settlement Agreement, only if the Party demonstrates the request to amend the New License is founded on significant new information not known and that could not have been reasonably known as of the date of issuance of the New License. In such event, that Party shall comply with the provisions of Section 7 pertaining to the amendment of the Settlement Agreement, including, if necessary, engaging in Consultation pursuant to Section 6.2. An amendment to the New License that is a material modification of the Settlement Agreement shall not proceed unless it has the unanimous consent of all Parties.

- 9.2 Nothing in this Settlement Agreement requires an agency in the exercise of lawfully reserved authority to obtain unanimous consent of the Parties with respect to the exercise of that authority or to comply with any standards or procedures otherwise generally applicable under this Settlement Agreement.

10 Withdrawal From Settlement Agreement.

- 10.1 A Party may withdraw from this Settlement Agreement once a final decision has been rendered with respect to the New License, provided the withdrawing Party has complied with the Consultation procedures in Section 6.2 and only if, in its judgment, a disputed decision materially alters its bargained-for benefits in the Settlement Agreement. A decision is considered final when the Party seeking withdrawal has exhausted administrative remedies, including rehearing, and has either exhausted judicial remedies, or allowed the opportunity to seek such judicial remedies to expire. A Party may also withdraw from this Settlement Agreement if FERC modifies the New License in a manner that was not the result of an agreement to amend pursuant to Section 7 and that materially alters the Party's bargained-for benefits in the Settlement Agreement.
- 10.2 A Party shall not have the right to withdraw from the Settlement Agreement in the event a dispute falling under Sections 6.3.1, 6.3.2, or 6.3.3 of this Settlement Agreement is not resolved in the Party's favor.
- 10.3 A Party may exercise its right to withdraw from this Settlement Agreement by giving notice pursuant to Section 13.5. Withdrawal is effective 10 calendar days after notice. The withdrawal of a Party, other than Licensee, does not terminate this Settlement Agreement for the remaining Parties.

11 Termination of Settlement Agreement.

- 11.1 This Settlement Agreement shall terminate as to all Parties and have no further force or effect upon termination under Section 5.6, upon withdrawal of the Licensee, or upon expiration of the New License and any annual licenses issued thereafter. It shall terminate for a withdrawing Party upon such Party's withdrawal from this Settlement Agreement.

- 11.2 If the Settlement Agreement is terminated before the expiration of the New License or any annual license due to withdrawal of the Licensee, all Parties agree and will support a motion or other form of request, as appropriate, that the Commission commence a proceeding to determine whether the termination of the Technical Settlement Document, including the mutual rights and obligations in cooperative management, may justify amendment of the New License.

12 Cooperative Management Teams.

- 12.1 Unless otherwise specified, any Cooperative Management Team ("CMT") provided for in this Settlement Agreement shall function consistent with the following:

12.1.1 Decision-making shall be by consensus.

12.1.2 Disputes shall be resolved according to Section 6.

12.1.3 Provision shall be made for adequate communication and coordination among and between the members of the CMT.

12.1.4 Unless an alternative procedure is adopted by the CMT, the Licensee will provide reasonable advance notice of all CMT meetings to CMT members and maintain minutes of such meetings.

12.1.5 Each CMT, within one year of acceptance of the License, shall adopt an appropriate policy with respect to public observation and non-voting participation in CMT meetings and public access to minutes, reports and documents of the CMT.

12.1.6 Additional members may be added to the CMT upon consensus of the CMT members.

13 Miscellaneous Provisions.

- 13.1 Limitation of Applicability. This Settlement Agreement is made on the express understanding that it constitutes a negotiated settlement of issues specific to the Project. No Party shall be deemed, by virtue of execution of this Settlement Agreement, to have established precedent, or admitted or consented to any

approach, methodology, or principle except as expressly provided herein. In the event this Settlement Agreement is approved by FERC, such approval shall not be deemed precedential or controlling regarding any particular issue or contention in any other proceeding.

- 13.2 Successors and Assigns. This Settlement Agreement shall apply to, and be binding on, the Parties and their successors and assigns. No change in ownership of the Project or transfer of the New License by Licensee shall in any way modify or otherwise affect any other Party's interests, rights, responsibilities, or obligations under this Settlement Agreement. Unless prohibited by applicable law, Licensee shall provide in any transaction for a change in ownership of the Project or transfer of the existing or New License, that such new owner shall be bound by, and shall assume the rights and obligations of this Settlement Agreement upon completion of the change of ownership and, as applicable, approval by FERC of the license transfer. In the event applicable law prohibits the new owner from assuming the rights and obligations of this Settlement Agreement, any Party may withdraw from this Settlement Agreement. The Licensee shall provide notice to the other Parties at least 90 days prior to completing such transfer of license.
- 13.3 Severability. The terms of this Settlement Agreement are not severable one from the other. This Settlement Agreement is made on the understanding that each term is in consideration and support of every other term, and each term is a necessary part of the entire Settlement Agreement.
- 13.4 Force Majeure. In those instances where force majeure may apply, unlike FERC enforcement of License conditions under the FPA, no Party shall be liable to any other Party for breach of this Settlement Agreement as a result of a failure to perform or for delay in performance of any provision of this Settlement Agreement due to any cause reasonably beyond its control. This may include, but is not limited to, natural disasters, labor or civil disruption, or breakdown or failure of Project works, so long as any such event is reasonably beyond the control of the Party who delays or fails to perform. The Party whose performance is affected by a force majeure will make all reasonable efforts to promptly resume performance. The Party affected by a force majeure event shall notify the other Parties of the circumstances of the event that it believes constitutes a force majeure event by telephone, fax or e-mail, as soon as it is reasonably possible and practical to do so.

13.5 Notice and Communications.

13.5.1 All written notices to be given pursuant to this Settlement Agreement shall be mailed by electronic mail, fax, first class mail, or overnight express service, to each Party at the addresses listed below or to such subsequent address as a Party shall identify. Notices shall be deemed to be given on the same business day as any email or fax transmitted before 5:00 pm, eastern time, unless the intended recipient demonstrates that the electronic mail or fax was not timely received, or five (5) business days after the date of mailing or on date of receipt if overnight express or other receipt-notification service is used. When time is of the essence, such as in an emergency situation, notice may be accomplished by fax or electronic mail so long as written notice is made by first class mail or overnight express service as soon as practicable.

13.5.2 For purposes of implementing this Settlement Agreement, the Parties agree that the individuals listed in Appendix C shall be designated to be the primary contact person and all written notices shall be posted to these individuals at the addresses listed below. Notification of changes in the contact persons must be made in writing and delivered to all other contact persons.

13.6 Responsibility for Costs. Except as expressly provided for in this Settlement Agreement, all Parties are to bear their own costs of participating in the Settlement Agreement.

13.7 Adjustment for Inflation / Deflation.

13.7.1 Unless otherwise stated, all annually provided funds by the Licensee are in Year 2002 dollars and shall be adjusted as described in Section 13.7.3 below, except when a settlement article explicitly states that the funds are not to be adjusted.

13.7.2 Unless otherwise stated, all capital funds provided by the Licensee are in Year 2002 dollars and will not be adjusted per the index described in Section 13.7.3 below.

13.7.3 The funds described in Section 13.7.1 above in this Settlement Agreement shall be adjusted for inflation or deflation by using the Consumer Price Index (CPI) – All Urban Consumers, U.S. City Average, All Items, Index Base Period: 1982-84=100 as published by the U.S. Department of Labor,

Bureau of Labor Statistics. A reference period from which changes in the CPI will be measured shall be established for each base payment. An adjusted payment shall be calculated by taking the published CPI for the month two months prior to the month the payment is due and dividing by the reference period CPI, then multiplying this value by the base payment. The calculated adjusted payment shall be rounded to the nearest whole dollar.

13.7.4 If the Bureau of Labor Statistics changes the CPI or changes the index base period, the Parties affected by the CPI agree to negotiate whether to use the new CPI or a substitute, whichever is more consistent with the above principles.

13.8 Funding for Resource Agency Studies

13.8.1 The Licensee agrees to fund enhancements as stated in the Proposed License Articles and related provisions of the Technical Agreement. Any funds provided to any governmental agency, NGO, home owner association or any other group shall be used for the specific purpose outlined in the settlement article. The Licensee reserves the right to require an annual accounting for funds provided to any of the entities designated to receive funds from the Licensee and the recipient entity shall provide that accounting within 90 days of the Licensee's request.

13.8.2 Unless specifically provided to the contrary in this Settlement Agreement, any funds not explicitly identified as monetary payments to a group or agency may be accounted for either as costs paid by the Licensee for outside goods and services or costs accrued by use of the Licensee's professional and technical staff.

13.9 Operational Changes to Kerr Reservoir. The Parties agree that operations at the Project may need to be modified as necessary to reflect future changes by the Army Corps of Engineers to operations at Kerr Reservoir. The Licensee shall have the responsibility to evaluate and determine whether obligations under this Settlement Agreement cannot be reasonably met as a result of operational changes at Kerr. Licensee shall consult with other Parties if its evaluation demonstrates that such conflict may occur and shall seek to reach consensus of mutually agreeable amendment to the Settlement Agreement. The Licensee shall follow Section 7 to develop any license amendment application as required by FERC regulations.

- 13.10 Liabilities for Required Biological / Ecological Actions. To the extent the Licensee is required to provide upstream or downstream passage for any fish species under this Settlement Agreement, the Licensee shall not be liable for any harm or damages to the river ecosystem as a result of passage of fish with parasites or diseases both known and unknown at this time, provided that the Licensee provides such passage in conformance with the License or other binding agency requirements.
- 13.11 Water Quality Certification.
- 13.11.1 Nothing in this Settlement Agreement is intended to or shall be construed to affect in any way the authority of the State of North Carolina pursuant to 33 U.S.C. § 1341, and related state statutes and rules, such as by limiting the authority of the State of North Carolina to issue, condition, or in any way alter a water quality certification or by limiting the exercise of the State of North Carolina's discretion. Execution of this Settlement Agreement by the State of North Carolina implies no representation that the requirements of this Settlement Agreement ensure compliance with State water quality standards and other appropriate requirements of State law.
- 13.11.2 Execution of this Settlement shall not be construed to confer on any Party any right to contest the water quality certification or any condition thereof. Any Party aggrieved by North Carolina's water quality certification has the right to an adjudicatory hearing upon written request made within sixty (60) days following receipt of the certification. The request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, P.O. Box 27447, Raleigh, NC 27611-7447. If modifications are made to the certification, any Party aggrieved by the modifications has the right to an adjudicatory hearing on the modifications upon written request made within sixty (60) days following receipt of the modifications.
- 13.12 Water Rights Unaffected. This Settlement Agreement does not grant or affirm any property right, license or privilege in any waters or any right of use in any waters. This Settlement Agreement does not authorize any person to interfere with the riparian rights, littoral rights or water use rights of any other person. No person shall interpose this Settlement Agreement as a defense in any action respecting the determination of riparian or littoral rights or other water use rights.

- 13.13 Cross Referenced Laws and Documents. Unless otherwise noted, any reference to any statute, regulation or other document refers to the statute, regulation or document as it exists on the effective date of this Settlement Agreement.
- 13.14 No Third Party Beneficiaries. This Settlement Agreement shall not create any right in any individual or entity that is not a Party or in the public as a third-party beneficiary. This Settlement Agreement shall not be construed to authorize any such third party to maintain a suit in law or equity under this Settlement Agreement.
- 13.15 No commitment of funds. Nothing in this Settlement Agreement shall be construed as obligating any federal, state, or local agency to expend in any fiscal year any sum in excess of appropriations made by Congress or state or local legislatures or administratively allocated for the purpose of this Settlement Agreement for the fiscal year or to involve any federal, state, or local agency in any contract or obligations for the future expenditure of money in excess of such appropriations or allocations.
- 13.16 No Delegation. Nothing in this Agreement shall be construed as requiring or involving the delegation by any government agency to any other body of any authority entrusted to it by Congress or the legislature of any State.

14 Signatures.

- 14.1 Each party to this Agreement represents and acknowledges that it has the full legal authority to execute this Agreement and shall be fully bound by its terms.