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 31October 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 <u>Cooperative Agreement for Monitoring Anadromous Fish Spawning</u>

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.
- 2.3.2 Only two peak days are allowed March 25 to March 31.
- 2.3.3 During the weeks the Licensee chooses to peak, the minimum flow for that week shall be 3,500 cfs.
- 2.3.4 Peaking will occur for no more than 3 consecutive days, no more than 3 days in one week.
- 2.3.5 The 5 days of peaking shall be limited to 2 weeks of the Licensee's choosing.
- 2.3.6 On peak days, the ramp up shall be as follows:
  - 2.3.6.1 Ramp from minimum flow to minimum flow plus 5000 cfs
  - 2.3.6.2 Hold for one hour
  - 2.3.6.3 Ramp up according to Licensee peaking needs
- 2.3.7 On peak days, the ramp down shall be as follows
  - 2.3.7.1 Ramp from peak down to minimum flow plus 5000 cfs
  - 2.3.7.2 Hold for one hour
  - 2.3.7.3 Ramp down to minimum flow

2.4 For the period of April 1 though 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 Flow[1]**
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 ≥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 June15, 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 Licensees 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 §s 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 §s 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 non-governmental 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.

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 24-hourly 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 (^{o}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 in5.1, 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 <u>Downstream Water Quality Monitoring</u>

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 (bi-monthly) 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 (^{o}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 DRFTAC 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 licensee 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 4years 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 he 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 RC 1.2 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 RC 1.2 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 RC 1.2 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	North end of Roanoke Rapids dam	II	10,500

Rapids			
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
Recreation Enhancements

1. Lake Gaston Dam Day Use Area (upgrade):	**Detailed Cost Estimate**
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	$ 175,350

2. Roanoke Rapids Lake Peninsula Park Day Use Area:	
Additional clearing and grubbing	$ 8,400
Two lane paved road to site (this includes clearing & grubbing for	$ 56,070

road access and for peninsula and undergrowth clearing)		
Extension of canal trail through woods (6'-8' 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'x 90' 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 included 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
Six-foot 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 electrical, water, and sewer hookup	$	7,350
Total for area	$	737,100

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 VSHPPO. 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.