

DOMINION VIRGINIA POWER / NORTH CAROLINA  
POWER  
WITHIN WEEK PEAKING PLAN  
LICENSE ARTICLE 415  
Roanoke Rapids and Gaston  
FERC Project Number 2009

September, 2006

DOMINION GENERATION  
ROANOKE RAPIDS AND GASTON PROJECT  
FERC NO. 2009  
WITHIN WEEK PEAKING PLAN

1. INTRODUCTION

1.1 Project Description

The Roanoke Rapids and Gaston Project is located on the Roanoke River in Virginia and North Carolina downstream of the U.S. Army Corps of Engineers (USACE) Kerr Dam. Kerr, Gaston, and Roanoke Rapids form a continuous chain of reservoirs used for flood control and power generation along the middle portion of the Roanoke River basin.

The requirements of the Article 415 Within Week Peaking study plan are closely associated with the operation of the Roanoke Rapids Dam.

1.1.1 Gaston Development

The Gaston development is located approximately 34 miles downstream from the John H. Kerr dam and reservoir at river mile (RM) 145.5. The development's principal, existing features consist of: (1) a concrete and earthen dam measuring 3,600 feet in length, with a maximum height of about 105 feet; (2) a concrete ogee-type spillway, measuring 550 feet in length, with 11 steel radial gates measuring 40 feet wide by 38 feet high; (3) a 34-mile long impoundment, with a total storage volume of 450,000 acre-feet (AF; 20,000 AF useable storage) and surface area of 20,300 acres at a normal water surface elevation of 200 feet mean sea level (msl); (4) intakes integral with the powerhouse, with trashracks having a clear bar spacing of 8½ inches; (5) a submerged rockfill and concrete weir with a total length of about 1,010 feet, located upstream of the intake and surrounding the intake on three sides; (6) a 294-foot-long concrete and masonry powerhouse, and an adjacent 80-foot-long service bay and 45-foot-long uploading bay; (7) three vertical shaft, fixed blade turbines and one vertical shaft Kaplan turbine, having a total installed capacity of 225 MW (225 MW dependable) and a maximum hydraulic capacity of 44,000 cubic feet per second (cfs); (8) four 14.4-kilovolt (kV) generators connected to two 230-kV transformers; and (9) appurtenant facilities

The Gaston development was constructed between 1960 and 1962, with commercial operation beginning in February 1963. The development produces an average of 336,362,000 MWh annually. The Gaston development occupies all of the about 252 acres of federal land administered by the USACE.

### 1.1.2 Roanoke Rapids Development

The Roanoke Rapids development is located 42 miles downstream from the Kerr dam (7.5 miles downstream from the Gaston development) at RM 135. The development's principal, existing features consist of: (1) a concrete gravity dam, measuring 3,050 feet long (includes powerhouse) and a maximum of 72 feet high; (2) a concrete ogee-type spillway, measuring 1,133 feet in length and having 24 spillway bays, with 24 steel radial gates measuring 38 feet wide by 23 feet high, one 25-foot-wide skimmer bay, and a 48-foot-wide non-overflow section; (3) an 8-mile long impoundment, with a total storage volume of 77,140 AF (20,640 AF useable storage) and surface area of 4,600 acres at a normal water surface elevation of 132 feet msl; (4) intakes integral with the powerhouse, with trashracks having a clear bar spacing of 6 inches; (5) a submerged rockfill weir, located upstream of the intake and surrounding the intake on three sides; (6) a 224-foot-long concrete and masonry powerhouse and an adjacent 182-foot-long service bay; (7) four Kaplan turbines (three fixed-blade propeller and one variable-pitch blade), having a total installed capacity of 104 MW (99 MW dependable) and a maximum hydraulic capacity of 20,000 cfs; (8) a 7,800-foot-long by 80-foot-wide tailrace channel, with variable depth (33 to 50 feet) and a normal water surface elevation of 55 feet msl; (9) four 14.4-kV generators connected to two 110-kV transformers; and (10) appurtenant facilities.

The Roanoke Rapids development was constructed between 1953 and 1955, with commercial operation beginning in September 1955. The development produces an average of 336,408 MWh annually. The Roanoke Rapids development does not occupy any federal lands.

### 1.2 Project Operation

The Roanoke Rapids and Gaston Project is operated in close coordination with the John H. Kerr Project. The Kerr Project is operated for flood control and power production. Generation of power is accomplished within the limits prescribed for flood control and minimum river flow regulation. The Kerr Project is operated in accordance with a reservoir guide curve and accompanying guidelines. Generally, whenever the reservoir is below the level of the guide curve, the power station is operated to meet the minimum power declaration per the Southeastern Power Administration (SEPA) contracts, which varies monthly. Water stored in the power pool and above the guide curve is generally released as timely as is practical to provide additional capacity for the control of floods.

During a typical week, the energy declaration for Kerr (weekly declaration) is usually proportioned and scheduled to meet load following system requirements during the 5 working days (Monday through Friday). Generation from Kerr is normally not scheduled during the weekend days (Saturday and Sunday).

### 1.2.1 Gaston Power Station

During normal operation, Dominion operates the Gaston development in a peaking or load following mode, in close coordination with the USACE's operation of the Kerr Project. The Gaston development typically operates with less than 1-foot fluctuation in its power pool (between elevations 199 and 200 feet msl). During the weekends, the Gaston station generally does not operate.

### 1.2.2 Roanoke Rapids Power Station

The Roanoke Rapids development is normally operated in a peaking (or load following) mode from Monday through Friday. Because of differences in the hydraulic capacity and storage volume (reservoir size) between the Gaston and Roanoke Rapids developments, the normal pool elevation of Roanoke Rapids Lake fluctuates more than that at Gaston, typically 3 feet during day-to-day operations and sometimes as much as 5 feet between elevations 127 and 132 feet msl.

Dominion operates Roanoke Rapids in a "run of Kerr" mode from March 1 through June 15 (exception of five peaking days in March as allowed by License Article 409). The run of Kerr mode was implemented to enhance spawning habitat for anadromous fish. During this time frame Dominion does not load follow at Roanoke Rapids.

Like the Gaston dam, Roanoke Rapids has a submerged weir constructed just upstream of the intake forebays. This construction feature causes the hydropower turbines to take suction from the upper portion and most oxygenated portion of the Roanoke Rapids reservoir.

Dominion operates at least one unit at Roanoke Rapids to maintain the required minimum flow. During the weekends when Gaston is not normally operated, the Roanoke Rapids Lake storage capacity is used to maintain the required minimum flow.

## 1.3 FERC License Article 415 Plan

Article 415. Project Within-Week Peaking Operations. (Settlement Agreement Article FL4):

Within one year of license issuance, the licensee shall file with the Commission, for approval, a plan to monitor, evaluate, and, if necessary, reduce the effects of within-week peaking operations on growing season floods, erosion, and suppression of vegetation and fauna in the riparian ecosystems downstream of the Roanoke Rapids Dam. Such reduction is intended to contribute to recruitment and survival of flora and fauna in numbers and locations that are adequate to sustain the riparian ecosystem. Changes to within-week peaking operations shall not constrain the licensee's within-day peaking operation nor require modification to the U.S. Army Corps of Engineer's (Corps) weekly declaration (as defined in Settlement Agreement Article GP2).

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

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

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

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

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

(d) benthic macroinvertebrates in tributary streams;

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

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

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

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

(4) a description of the procedures whereby the licensee, as set forth in Article 427, shall consult with a Cooperative Management Team (CMT), consisting of the North Carolina Wildlife Resources Commission, the North Carolina Department of Environment and Natural Resources, the U.S. Fish and Wildlife Service, the National

Marine Fisheries Service, The Nature Conservancy, and the Regional Partnership of Local Governments in an ex officio capacity, to develop, and following the Commission's approval, implement the plan. Among other things, the plan shall provide for a determination at the end of each monitoring cycle, of whether a causal link exists between within-week peaking operations and growing season floods and adverse effects on any of the monitored species;

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

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

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

(8) an implementation schedule.

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

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

Short-term changes to any study or monitoring plan required by this article and undertaken in response to events that may alter flow releases or affect monitoring effectiveness may be made after consultation with the members of the CMT, as set forth

in Article 427. Any such changes shall be reported to the Commission within 30 days of being determined necessary.

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

## 2.0 PLAN DEVELOPMENT

### 2.1 Background

Concerns were raised during the relicensing of the Roanoke Rapids/Gaston Project about the effects of within-week peaking operations on bottomland hardwood forest and related ecosystems in the lower Roanoke River downstream of Roanoke Rapids Dam. It was hypothesized during the relicensing discussions that reallocation of the US Army Corps of Engineers (USACE) Kerr Reservoir Weekly Declaration by Dominion peaking operations at Roanoke Rapids has a negative effect on the ecosystems. Studies performed by Dominion in 2000 and 2001 indicated some inundation of the lower river bottomland ecosystems when Dominion reallocates the Weekly Declaration. What was not determined was if that inundation has a negative effect on those ecosystems. During the course of relicensing the Project, Dominion and stakeholders agreed that further study efforts were required to determine if there was a causal link between Dominion operations and possible ecosystem stresses.

As a result of the relicensing negotiations, the Settlement Agreement and the subsequent revised license order required further assessment of the downstream effects and the potential requirement of Dominion operational changes at the Roanoke Rapids Dam.

### 2.2 Consultation

This plan was developed in consultation with the Cooperative Management Team (CMT) consisting of USFWS, the National Marine Fisheries Service (NMFS), the North Carolina Wildlife Resources Commission (NCWRC) the North Carolina Department of Environment and Natural Resources (NCDENR), The Nature Conservancy (TNC) and the Regional Partnership of Local Governments in an ex officio capacity. CMT meetings were held on September 29, 2004; January 13, 2005; March 30, 2005; October 14, 2005; February 10, 2006; June 1, 2006; July 17, 2006; and September 8, 2006. Notes from those meetings are included as Appendix 1. Dominion provided a copy of the draft plan for review to CMT members on August 22, 2006 for review.

No specific comments were received relating to this plan. The draft plan was reviewed in the September 8, 2006 meeting and all comments were incorporated at that time. Since this Plan mirrors the Article 414 plan, comments received for that plan were incorporated in to this Plan.

### 3.0 PLAN

#### 3.1 Management Objectives

In executing this plan it is the Cooperative Management Team's objective to assess and, if necessary, reduce the contribution of the Dominion's within-week peaking operations to (1) tree seedlings, (2) large moths and butterflies including forest tent caterpillar, (3) terrestrial crawfish (4) benthic macroinvertebrates in tributary streams, (5) natural communities including forested peatlands, forest swamps and bottomland hardwoods and (6) bank vegetation and bank erosion within the lower Roanoke River basin generally described as Reaches 2 and 3. (These reaches are between Weldon and Jamesville.) If reduction methodology is required as described in this plan, implementation will be 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 lower Roanoke River affected by Dominions reallocation of the USACE Weekly Declaration.

#### 3.2 Specific Monitoring plans

##### 3.2.1 Technical Plans

Four technical plans are attached as appendices 2 through 5 that describe in detail the scientific studies that will occur. Monitoring the Establishment and Survival of Floodplain Tree Seedlings: Roanoke River addresses the tree seedling objective (1) and is attached as Appendix 2. Effects of Within-Week Peaking on Benthic Macroinvertebrates in Tributary Streams addresses the benthic macroinvertebrates in tributary streams and is attached as Appendix 3. Revised Forest Map of the Roanoke River Floodplain addresses the natural communities' objective (5) and is attached as Appendix 4. The Effects of Within-Day and Within-Week Peaking on Bank Erosion of the Roanoke River Downstream of the Roanoke Rapids Dam addresses the erosion objective (6) and is attached as Appendix 5.

The plans address the requirements of Article 415 for monitoring protocols, data standards, specific monitoring variables and selection of monitoring sites. It should be noted that Appendix 5 addresses the Article 414 Effects of Within Day Peaking plan as well as this plan.

The Revised Forest Map of the Roanoke River Floodplain addresses the natural communities of objective (5) and is required by the license on a 20-year cycle. The first cycle will be completed between 2007 and 2011. The next study cycle will be 2027 to 2031.

Two objectives from 3.1 above are not specifically addressed in this plan: (2) large moths and butterflies including forest tent caterpillar and (3) terrestrial crawfish. As the CMT was developing this plan, it was decided that it was very likely that the sensitivities of

objectives two and three would be within the sensitivity boundaries of the other studies. In the July 17, 2006 meeting of the CMT it was determined that the two objectives would not be addressed in the first 5-year study cycle, and revisited at a later time, as needed.

### 3.2.2 Testable hypotheses

It is the determination of the CMT to keep the testable hypothesis for this plan as simple as possible. It was established during the relicensing that Dominion's weekly reallocation of the USACE weekly declaration causes flooding in the lower Roanoke River Basin that would not occur if Dominion released the daily average of the weekly declaration. It was hypothesized by several agencies and NGO's that Dominion's re-regulation of the weekly declaration which forces water into the lower basin floodplain, has a negative effect on the ecosystems listed in 3.1 above.

## 3.3 Decision Criteria

### 3.3.1 Decision Criteria

The CMT again desires the decision criteria to remain as simple as possible. Simply stated, if data from the studies disprove the hypotheses of detrimental peaking effects, then the decision will be to discontinue further studies and leave the peaking operation in the current state. This can occur at the end of any 5-year study cycle. If the CMT agrees that the data support the hypotheses of detrimental peaking effects, then modifications to the peaking operations will be evaluated and selected. The CMT recognizes that due to the complicated nature of interactive forces within the Roanoke system (e.g., flood control and peaking releases), it may be difficult to statistically test some hypotheses. Therefore, the CMT may also determine after substantial testing that while there is no direct evidence to disprove or support the hypotheses of detrimental peaking effects, studies may be discontinued or continued as determined by the CMT's decision making procedures (Section 3.3.2).

### 3.3.2 Decision making procedures and study protocol changes

All CMT decision-making shall be by consensus and all Members of the CMT (Members) are committed to make a good faith attempt to reach consensus on all issues. Consensus means that the Members state they can live with the decision, as follows: A decision based on consensus shall have either the unanimous support of all Members, or at least no opposition from any Member; provided, however, that a decision by consensus need not have the support of an ex officio Member. It is the responsibility of Members to make known their views if they are in disagreement or need to confer with their respective organization. If a Member cannot live with a decision, that Member will propose an alternative for consideration by the CMT. It will have the option to enter into informal consultations with one or more of the other Members. Successful resolution through such informal consultation will then be brought back to all Members of the CMT for approval. If consensus cannot be reached, a Member may proceed with

dispute resolution according to Section 6 of the Roanoke Rapids and Gaston Comprehensive Settlement Agreement (Settlement Agreement). Success criteria and revisions to any protocols or change in study cycle duration will also be determined using this decision making process.

### 3.4 Monitoring Cycles

Monitoring cycles will normally be five-year cycles. The first monitoring cycle for compliance with Article 415 is from January 1, 2007 – December 31, 2011. The second study cycle is January 1, 2012 – December 31, 2016. Study cycles can be altered in one-year increments per consensus agreement following the protocol of section 3.3.2 above.

### 3.5 Monitoring Sites

Selection of monitoring sites will be performed cooperatively. One of the initial steps in each of the studies described in attachments 2 – 5 is selection of the sites. This selection will be performed collaboratively and will be one of the first steps once the academicians' studies are initiated. Generally transects established by Townsend and Peet in earlier lower Roanoke River ecosystem studies will be utilized to as preferred sites. This will ensure data are comparable with previous work performed in the lower Roanoke River Basin. A report will be developed and sent to the Commission by January 31, 2008 that describes site selection from the initial study plan implementation in 2007.

## 4.0 Funding

### 4.1 Annual Funding

Funding for the studies and plan was made available by Dominion for accounting purposes as of January 1, 2005. Dominion made available \$100,000 in 2005. Beginning in 2006 and continuing throughout the studies, funding shall be for \$50,000 annually (all funds in 2002 dollars and adjusted for the CPI as detailed in the Settlement Agreement Section 13). In addition, in any calendar year a CMT member organization(s) provides funds for this study, Dominion is obligated to match that amount up to an additional \$25,000. Funding shall continue until the CMT determines that no additional study cycles are required.

### 4.2 Annual Carryover of Funds

Any calendar year funds not utilized in that year may be carried over to the next year or held for a future year as determined by the CMT. Since this plan was not provided to FERC for approval and no studies were performed in 2005, \$150,000 is available for studies in calendar year 2006 (plus matching funds if required). Dominion will keep an up to date accounting worksheet for annual review by the CMT to indicate availability of funds for this Plan.

#### 4.3. Synergy with CMT from Article 414

The CMTs identified in License Article 414 Within Day Peaking and Article 415 Within Week Peaking are identical. Hypothesized effects from the Roanoke Rapids Dam are in many cases difficult to differentiate. The CMT determined that funds for the two plans can be used interchangeably.

### 5.0 Plan Management Decisions

#### 5.1 General

By utilization of a cooperative management process, as well as decision making processes, the execution of this plan requires numerous decisions to be made. These decisions will typically be made using appropriate study results, applying sound scientific principles and utilizing methods described in section 3.3.

#### 5.2 Causal Link

The CMT Members have agreed to cooperatively make appropriate decisions related to within week peaking effects. The determination of the presence or lack thereof of a causal link between the Roanoke Rapids Dam peaking operations will be through the cooperative examination of study results, appropriate application of scientific principles and knowledge, and mutual exchange of ideas and theories to the study results. The methods described in section 3.3 and Settlement Agreement (License Appendix B) Articles 6 (Dispute Resolution) and 12 (Cooperative Management Teams) will be used to give guidance to reaching consensus.

As stated in 3.3.1 above, if the data from the studies disprove or do not support the hypothesis, then the decision will be to discontinue further studies and leave the within week peaking operation in the current state. This can occur at the end of any 5-year study cycle.

Three decisions can be reached by the CMT:

- Not enough information is present to make a decision. Studies need to continue.
- The data indicates that there is no causal link or at least fails to support a causal link for any study. Studies cease and Roanoke Dam Operations remain status quo.
- A causal link is established for one or both of the studies. Changes in the operations shall be made according to section 5.3 and one or more studies continued as determined by the CMT.

#### 5.3 Potential Modifications to Within Day Peaking Operations

##### 5.3.1 One-half step increments

Changes in the Roanoke Rapids Dam peaking operation may be required if a causal link is established. The intent of required modifications of Dominion's rescheduling of the

USACE weekly declaration is to reduce its net effect on the USACE declaration by half. Thereafter, each reduction step taken 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 Dominion 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.

### 5.3.2 Potential step changes

Changes required may be one of the following that Dominion determines and the CMT agrees would reduce the latitude available to Dominion in its peaking operation

- Reduce the maximum number of consecutive peaking days in a week.  
Example: Dominion and the CMT would agree to limit the number of consecutive peaking days. This would potentially cause generation to be for a longer time period on peaking days, but allow for a "reset" during the non-peaking low flow period. This would allow water pushed into the lowlands following peaking to flow back out relatively quickly, rather than keep the lowland areas inundated.
- Establish higher minimum flows for non-peaking days.  
Example: Currently the minimum flow for July 1 – September 15 is 2,000 cfs. On weeks Dominion planned to peak, the minimum flow for non-peak times could be increased to a pre-set level dependent upon the weekly declaration. The higher the weekly declaration the higher the minimum flow would be. This would cause the average daily flow from Roanoke Rapids to be closer to the weekly declaration and increase the average daily flow from Roanoke Rapids.
- By some other systematic means modify Dominion's redistribution within week of the USACE declaration. Dominion may propose another alternative to the CMT that would produce the effect of within-week peaking flows as described in 5.3.1 above.

At this time the potential step changes are the same as those proposed in the July 2003 settlement agreement. The CMT and Dominion believe if a causal link is established, execution of the five-year study plan may clarify not only effects of Dominion's operation but also what operational changes may best be implemented to reduce the effects. The changes planned will be presented in the end of cycle report required by the Commission in Article 415 and will not be implemented until approved by the Commission.

## 5.4 Other Required Decisions

### 5.4.1 Shortening or extending study cycle length.

A 5-year study cycle may be changed using the decision-making criteria described in section 3.3. This may be required if data is determined to be sufficient to conclude that a causal link exists prior to completing a full 5-year cycle or if after 5-years the CMT members agree data is not sufficient to make a decision or unusual circumstances (i.e.

very high or low water years) prevented the collection of sufficient data to make a decision.

#### 5.4.2 Modification of the Roanoke Rapids Dam operation prior to start of second, third, etc. study cycles.

If a causal link is established, Dominion will propose the methodology to reduce the within-week peaking operations impact on the ecosystems described in section 3.1 of this plan. The proposal shall describe clearly not only steps to be taken for the first 1/2 change required, but describe subsequent steps up to the point where the weekly declaration required to be is equally distributed each day of the seven day declaration period.

#### 5.4.3 Criteria for and determination of required fractional application of operational modifications.

All CMT decision-making shall be by consensus and all Members of the CMT (Members) are committed to make a good faith attempt to reach consensus on all issues. Consensus means that the Members state they can live with the decision, as follows: A decision based on consensus shall have either the unanimous support of all Members, or at least no opposition from any Member; provided, however, that a decision by consensus need not have the support of an ex officio Member. It is the responsibility of Members to make known their views if they are in disagreement or need to confer with their respective organization. If a Member cannot live with a decision, that Member will propose an alternative for consideration by the CMT. It will have the option to enter into informal consultations with one or more of the other Members. Successful resolution through such informal consultation will then be brought back to all Members of the CMT for approval. If consensus cannot be reached, a Member may proceed with dispute resolution according to Section 6 of the Roanoke Rapids and Gaston Comprehensive Settlement Agreement (Settlement Agreement). Success criteria and revisions to any protocols or change in study cycle duration will also be determined using this decision making process.

## 6.0 Reports

Dominion shall submit a report to the commission every 5 years starting April 1, 2012 until the study period is concluded or at the end of the license term, whichever comes first. The study report shall (1) summarize the determined effects of within week peaking on the ecosystems described in section 3.1, (2) indicate if studies are to be continued or discontinued if no causal link was established (3) if studies are to be continued what operational changes will be occurring to reduce the causal link and (4) document consensus determinations made by the CMT.

## 7.0 Implementation Schedule

In order to provide the Commission and the CMT a basis for developing this plan, Dominion contracted with Virginia Tech, the University of North Carolina and the University of Wisconsin to develop portions of the technical studies protocols for the erosion, tree seedling and natural community portions of the plan. The universities were also awarded the contract to perform the work once approved by the Commission. This portion of the plan shall be implemented as soon as the Commission approves the plan and Dominion notifies the principal investigators. The remaining portions of the technical study plans will be implemented as soon as practical, but during 2007 as appropriate. Several contracts will be awarded for much of the data collection. Some of the work is seasonal and shall be conducted in the next available season (for example, February – March 2007 for tributary benthic macroinvertebrates and prior to leaf out for the tree seedling study plots).