

137 FERC ¶ 62,258  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Appalachian Power Company

Project No. 739-022

ORDER ISSUING NEW LICENSE

(December 27, 2011)

**INTRODUCTION**

1. On June 29, 2009, Appalachian Power Company (Appalachian Power), a unit of American Electric Power (AEP), filed an application for a new major license under sections 4(e) and 15 of the Federal Power Act (FPA),<sup>1</sup> for the continued operation and maintenance of the Claytor Hydroelectric Project (Claytor Project). The 75-megawatt (MW) project is located on the New River in Pulaski County in the Commonwealth of Virginia.<sup>2</sup> The project does not occupy any federal lands.

2. As discussed below, this order issues a new license for the project.

**BACKGROUND**

3. The Commission issued the original license for the project on May 22, 1943, effective July 1, 1931, for a period of 50 years.<sup>3</sup> The project was relicensed on August 20, 1980, for a period of 30 years beginning July 1, 1981.<sup>4</sup> That license expired on June 30, 2011. Since then, Appalachian Power has operated the project under an annual license pending the disposition of its new license application.<sup>5</sup>

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<sup>1</sup> 16 U.S.C. §§ 797(e) and 808 (2006).

<sup>2</sup> The project is required to be licensed under FPA section 23(b)(1), 16 U.S.C. § 817(1)(2006), because the project is located on a navigable waterway of the United States. *United States v. Appalachian Electric Power Co.*, 311 U.S. 377 (1940).

<sup>3</sup> 3 FPC 1004 (1943).

<sup>4</sup> 12 FERC P62,119 (1980).

<sup>5</sup> See Notice of Authorization for Continued Project Operation (July 29, 2011).

4. On September 30, 2009, the Commission issued a public notice that was published in the *Federal Register* accepting the application for filing, soliciting motions to intervene and protests, indicating the application was ready for environmental analysis, and soliciting comments, final recommendations, terms and conditions, and prescriptions.<sup>6</sup> The notice set November 30, 2009, as the deadline for filing motions to intervene, comments, recommendations, terms and conditions, and prescriptions. The United Keetoowah Band of the Cherokee Indians, Charles P. Shorter, Shepard M. Zedaker, Virginia Department of Environmental Quality (Virginia DEQ), Skyline Soil and Water Conservation District (Skyline SWCD), West Virginia Division of Natural Resources, Robert A. Strenz, Cheri Strenz, Department of the Interior (Interior), Larry N. Killough, David and Susan Dobyns, Alan W. Graybeal, Virginia Department of Game and Inland Fisheries (Virginia DGIF), Thomas A. Warden III, Friends of Claytor Lake (FOCL), Laura Walters, Eric Rorrer, Laura Bullard, Friends of the New River (FONR), Mark F. Williams, James and Nancy Blair, and Travis J. Tysinger filed comments. No entities filed timely motions to intervene.

5. FOCL and Pulaski County Board of Supervisors (Pulaski County) filed late motions to intervene on May 18, 2011, and June 27, 2011, respectively. On August 30, 2011, the Commission's Secretary issued a notice denying both late motions to intervene.<sup>7</sup>

6. A draft Environmental Assessment (EA) was prepared by Commission staff and issued on August 12, 2010. The draft EA addressed the comments and recommendations filed in response to the September 30, 2009 notice. Thirty-three comment letters on the draft EA were filed. The comments filed on the draft EA were addressed in staff's final EA issued on April 8, 2011.

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<sup>6</sup> 74 *Fed. Reg.* 51573-51574 (October 7, 2009).

<sup>7</sup> See Notice Denying Late Intervention, issued August 20, 2011 (unpublished). On September 29, 2011, and September 30, 2011, respectively, FOCL and Pulaski County filed requests for rehearing of the denial of their motions to intervene. On October 6, 2011, the Commission's Secretary issued notices dismissing FOCL's request for rehearing and rejecting Pulaski County's request for rehearing. See Notices Rejecting Requests for Rehearing, issued October 6, 2011 (unpublished).

7. The comments and recommendations have been fully considered in determining whether, and under what conditions, to issue this license.

## **PROJECT DESCRIPTION**

8. The Claytor Project is a conventional hydropower project located on the New River in Pulaski County, Virginia. The project has an estimated annual generation of 184,384 megawatt-hours (MWh).

### **A. Project Facilities**

9. Constructed in 1939, the Claytor Project consists of: a 1,142-foot-long, 137-foot-high concrete gravity dam; a 4,363-acre reservoir with a storage capacity of 225,000 acre-feet at a normal pool elevation of 1,846.0 feet National Geodetic Vertical Datum (NGVD); four 16-foot-diameter penstocks; a powerhouse integral with the dam containing four generating units with a combined capacity of 75 MW; an 827-foot-long transmission line; and appurtenant equipment.

### **B. Current Project Operation**

10. Inflow to the Claytor Project comes from the New River and flows into Claytor Lake, the reservoir created by Claytor dam. Water in Claytor Lake is directed either through the spillway gates or through the project intake, located at the base of Claytor dam, and into the powerhouse via the project penstocks. From the powerhouse, which is located on the southeast side of the dam, water is discharged back into the New River via the tailrace. The Claytor Project is operated to provide a minimum average daily flow of 750 cubic feet per second (cfs) to the tailrace when inflow to the reservoir is greater than 750 cfs.<sup>8</sup>

11. Turbine operation at the Claytor Project can be monitored and controlled locally from the plant's computer or remotely from the dispatch center located at American Electric Power's corporate headquarters in Columbus, Ohio. The turbines also can be started remotely. Operation of the nine spillway gates can only be manually initiated and controlled locally at the gates by plant personnel. When the reservoir is full, river flow in excess of the turbine capacity is discharged through the spillway gates.

12. From October 16 through April 14, the Claytor Project operates to meet peak demand for electricity generation. During peaking operations, the available water is used

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<sup>8</sup> Under extreme low-flow conditions when inflow to the reservoir is less than 750 cfs for an extended period, the discharge may be decreased after consultation with and concurrence from Virginia DGIF.

to generate as much power on-peak as possible, generally during the day on weekdays. The project can generate with flows up to a maximum of 10,000 cfs. This flow capacity is not normally utilized except during periods of high river flow when water would otherwise be spilled, or as needed to temporarily offset or balance system load. Normal operating flow releases from the project range from a flow of about 750 cfs to 8,000 cfs. When inflows are above the station capacity of 10,000 cfs and the reservoir is full, excess flows are spilled through the spillway gates.

13. When in peaking operation, the Claytor Project is operated on a weekly cycle. Beginning on Monday mornings, the project typically is drawn down approximately 1 to 2 feet over the course of the week (between elevation 1,846 and 1,844 feet NGVD), and then refilled over the weekend when generation is curtailed. As a result of the weekly cycle and peaking operations, daily fluctuations in the reservoir typically are less than 1 foot, and weekly fluctuations typically are 2 feet.

14. During the period from April 15 through October 15, Appalachian Power voluntarily operates the project in a “levelized flow mode,” which mimics run-of-river operation.<sup>9</sup> In levelized flow mode, peaking operations are limited, and the reservoir elevation is maintained between 1,845 and 1,846 feet NGVD. Levelized operation may be suspended during power system emergencies or in anticipation of high inflow due to forecasted rain events. Although the Claytor Project is not a flood control project, the reservoir is routinely lowered in anticipation of high inflow in order to equalize storm flows and gradually release them downstream over a period of time. If a significant rain event is expected, the reservoir may be lowered to 1,841 feet NGVD.

15. In recent years, Claytor Lake has been voluntarily drawn down 5 to 6 feet in the late fall or winter to allow shoreline property owners to maintain and/or repair docks, bulkheads, and boat ramps. The reservoir typically has been held at this level for about 2 weeks before being refilled.

### **C. Project Recreation Facilities**

16. Appalachian Power provides recreational access to the Claytor Project at five sites, including the New River Access boat launch on the New River downstream of Claytor dam, the Appalachian Power Group Picnic Area upstream of Claytor dam, the Allisonia boat launch at the upper end of Claytor Lake, and two tracts of land located adjacent to Claytor Lake that are reserved for future use. The first tract of reserved land is a 41-acre parcel on the west bank of Peak Creek (an arm of the reservoir) and the second tract is a

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<sup>9</sup> Levelized flow is defined as releasing equal amounts of water over the course of a 24-hour period so that outflow of the project approximately equals inflow to the project reservoir.

78-acre parcel at the confluence of Peak Creek and Claytor Lake. These sites are all located within the project boundary.<sup>10</sup>

17. Additionally, several recreation sites, which are maintained by entities other than Appalachian Power, provide access to project waters. Portions of these sites are adjacent to the shoreline and, therefore, are located within the project boundary, including: (1) Harry DeHaven County Park, (2) Claytor Lake State Park, (3) Lowman's Ferry, and (4) the Dublin boat launch.

#### **D. Project Boundary**

18. The current project boundary for the Claytor Project encloses the dam, reservoir, intakes, penstocks, powerhouse, tailrace, transmission line, the project recreation facilities, and lands reserved for recreation. The project boundary generally follows the reservoir at about the 1,850-foot contour, with the exception of a few steep shoreline areas, and where it encloses facilities needed for project operation and project recreation. The project boundary extends along the river bank about 2,000 feet downstream of the project dam. No federal or tribal lands are within the project boundary.

#### **E. Proposed Measures**

19. In its application, Appalachian Power proposed no new development or modifications to project operation other than the measures contained within the resource management plans that were developed in consultation with project stakeholders, including: (1) the June 2009 Erosion Monitoring Plan, (2) the June 2009 Sedimentation Monitoring Plan, (3) the June 2009 Water Management Plan,<sup>11</sup> (4) the June 2009 Water Quality Monitoring Plan, (5) the June 2009 Freshwater Mussel Adaptive Management Plan, (6) the June 2009 Aquatic Vegetation Management Plan, (7) the June 2009 Habitat

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<sup>10</sup> Appalachian Power's June 2009 Recreation Management Plan states that all of these facilities are located within the project boundary; however, the Exhibit G drawings filed by Appalachian Power with the Final License Application on June 29, 2009, do not indicate that the entire New River Access boat launch is included within the project boundary (Exhibit G-2). As such, article 203 of this order requires Appalachian Power to file revised Exhibit G drawings that enclose the entire New River Access boat launch site within the project boundary.

<sup>11</sup> The Water Management Plan includes provisions for minimum flow releases, seasonal peaking and non-peaking operations, recreational flow releases, public availability of flow release information, emergency drawdowns, flood control operations, water level measurements, project operation monitoring and reporting, consultation, and adaptive management.

Management Plan, (8) the June 2009 Fringed Mountain Snail Management Plan, (9) the June 2009 Recreation Management Plan, (10) the June 2009 Debris Management Plan, (11) the June 2009 Aids to Navigation Management Plan, and (12) the June 2009 Shoreline Management Plan.<sup>12</sup> In addition to the plans filed with the application, Appalachian Power's July 2010 Historic Properties Management Plan (HPMP) addressed cultural resources at the project.

## **SUMMARY OF LICENSE REQUIREMENTS**

20. As summarized below, this license, which authorizes 75 MW of renewable energy, requires a number of measures to protect and enhance fish, wildlife, cultural, recreation, and shoreline resources at the project.

21. To protect fish and aquatic resources in the New River, the license requires Appalachian Power to develop a reservoir drawdown plan, and modify and/or implement the following management plans: (1) the June 2009 Erosion Monitoring Plan to monitor and assess erosion at the project and develop a shoreline stabilization demonstration project; (2) the June 2009 Sedimentation Monitoring Plan to monitor and assess sedimentation in areas of concern; (3) the June 2009 Water Management Plan that includes the operational provisions, as well as flows for recreation, and provisions for variances, emergencies, flood control, monitoring, reporting, and adaptive management; (4) the June 2009 Water Quality Monitoring Plan to monitor and assess dissolved oxygen (DO) and temperature at the project and implement DO enhancement measures; (5) the June 2009 Freshwater Mussel Adaptive Management Plan to monitor and assess mussel populations downstream from the project; and (6) the June 2009 Aquatic Vegetation Management Plan to monitor and control non-native, invasive aquatic vegetation at the project.

22. To protect wildlife and terrestrial resources at the project, the license requires Appalachian Power to implement the following management plans: (1) the June 2009 Habitat Management Plan to protect and enhance valuable shoreline and riparian habitat at the project; and (2) the June 2009 Fringed Mountain Snail Management Plan to protect this federally listed species.

23. To protect cultural, recreation, and shoreline resources at the project, the license requires Appalachian Power to implement the following management plans: (1) the June 2009 Recreation Management Plan to provide enhancements at existing recreation sites and to explore potential improvements to meet future demand; (2) the June 2009

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<sup>12</sup> See Appalachian Power's *Application for New License, Volume VII, Revised Management Plan and Application for 401 Water Quality Certificate*, filed June 29, 2009.

Debris Management Plan to control natural and man-made debris on Claytor Lake; (3) the June 2009 Aids to Navigation Management Plan to mark marine features; (4) the June 2009 Shoreline Management Plan to guide land use and protect environmental resources along the project shoreline; and (5) the June 2010 Historic Properties Management Plan to protect cultural sites located at the project.

## **WATER QUALITY CERTIFICATION**

24. Under section 401(a)(1) of the Clean Water Act (CWA),<sup>13</sup> the Commission may not issue a license authorizing the construction or operation of a hydroelectric project unless the state water quality certifying agency either has issued water quality certification (certification) for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the CWA provides that the state certification shall become a condition of any federal license that authorizes construction or operation of the project.<sup>14</sup>

25. On June 26, 2009, Appalachian Power applied to the Virginia DEQ for certification for the Claytor Project, which Virginia DEQ received on June 29, 2009. By letter dated March 29, 2010 (and filed with FERC on April 22, 2010), Appalachian Power withdrew and reapplied for certification. On February 8, 2011, Virginia DEQ issued its certification for the Claytor Project and the certification was filed with the Commission on February 14, 2011.<sup>15</sup> The certification includes five special (project-specific) conditions (Part I, conditions A through E) and 17 general conditions (Part II, conditions A through Q), which are set forth in Appendix A of this order and incorporated into the license by ordering paragraph D.

### **A. Special Conditions (Part I)**

26. Condition A authorizes the diversion of surface water from the New River and Claytor Lake. Condition C requires the licensee to: (1) maintain beneficial uses;<sup>16</sup> (2) limit activities that would substantially disrupt movement of indigenous aquatic life;

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<sup>13</sup> 33 U.S.C. § 1341(a)(1) (2006).

<sup>14</sup> 33 U.S.C. § 1341(d) (2006).

<sup>15</sup> While Virginia DEQ refers to the permit issued pursuant to section 401 of the Clean Water Act as a Water Protection Permit, it is Commission practice to refer to a section 401 permit as a “water quality certification” or “certification.”

<sup>16</sup> Virginia DEQ defines beneficial uses to include both instream uses (protection of fish habitat, recreation, cultural values, etc.) and offstream uses (domestic water supply, agricultural use, electric power generation, commercial use, industrial use, etc.).

(3) maintain downstream flows to protect all uses; (4) prevent fuel and other pollutant spills; and (5) require that Virginia Water Quality Standards shall not be violated as a result of project activities.

27. Condition D establishes instream flow and lake level conditions and requires the licensee to: (1) maintain a minimum instream flow for the New River downstream from Claytor dam; (2) operate the project in a levelized flow mode of operation from April 1 through November 30; and (3) operate the project in a peaking mode from December 1 through March 31.

28. Condition E requires the licensee to: (1) monitor elevations in Claytor Lake as measured in the forebay (reservoir) and tailrace (downstream of the dam), using water level transducers, staff gauges located upstream and downstream that are calibrated with the transducers, and cameras located at the dam; (2) monitor releases of instream flows (discharges) from Claytor dam based on the discharge curves developed for the existing generating units; (3) monitor flows into the project boundary (inflow) as determined through monitoring of the U.S. Geological Survey (USGS) gauges on the New River at Allisonia (Gauge No. 03168000) and New River near Galax (Gauge No. 03164000); (4) implement the June 2009 Water Quality Monitoring Plan, with modifications; (5) implement the June 2009 Freshwater Mussel Adaptive Monitoring Plan, with modifications; (6) report any fish kills or fuel or oil spills to Virginia DEQ; (7) notify Virginia DEQ of any additional impacts to surface waters (including wetlands), of any modifications to the discharge works, and of any change to the type of surface water impacts associated with the project; (8) include Virginia DEQ in all advisory groups; (9) submit to Virginia DEQ a lake level and flow monitoring contingency plan in the case of equipment and/or gauge failure within 60 days of license issuance; (10) submit to Virginia DEQ the revised Water Quality Monitoring Plan and Freshwater Mussel Adaptive Monitoring Plan within 120 days of license issuance; (11) submit to Virginia DEQ the results of all plan studies, demonstration projects, research, analysis, modeling, and stakeholder coordination efforts conducted for the authorized project activities; (12) prepare an annual monitoring report to demonstrate compliance with the certification's special conditions; (13) ensure that Appalachian Power, or a person acting on Appalachian Power's behalf as a duly authorized representative, signs all reports required by the certification and other information requested by Virginia DEQ; and (14) provide a signed certification statement with all submittals.

## **B. Certification Term**

29. Condition B of the certification states that the certification is valid for 15 years from the effective date of the certification. The Virginia DEQ considers the effective date to be the date Appalachian Power receives a new license for the project. Several

other conditions of the certification also would allow for termination of the certification under certain conditions.<sup>17</sup>

30. The CWA requires a water quality certification in order for the Commission to *issue* a license. There is no requirement that a licensee seek a certification during the term of its license, absent Appalachian Power seeking an amendment to its project that would require a certification. Therefore, any termination of the certification during the license term would end the conditions of the certification, but would have no effect on the validity of the license.

31. As the Commission cannot issue new licenses for a term less than 30 years and the certification's term is 15 years, a concern exists regarding what would happen to the flow conditions included in the certification when the certification expires prior to the expiration of the license. To ensure that the fish and wildlife resources at the project are adequately protected during the term of a new license, this order requires that the certification's instream flow and lake level provisions; monitoring, notification, and reporting provisions, and DO and mussel monitoring provisions be implemented for the duration of the license.

32. Article 404 of this order requires Appalachian Power to implement the instream flow, lake level, monitoring, notification, and reporting provisions contained within Part I, sections E and D of the water quality certification, with modifications for whitewater boating releases, for the term of this license order. Articles 406 and 407 require Appalachian Power to implement the Water Quality Monitoring Plan and the Freshwater Mussel Adaptive Management Plan, respectively, for the term of this license with modifications that include the DO mitigation and mussel monitoring provisions outlined in the certification (Conditions E.4 and E.5).

### **C. General Conditions (Part II)**

33. Condition A requires the licensee to comply with all the conditions of the certification. Condition B does not permit the licensee to cease or restrict activities under the certification in order to comply with the terms of the certification. Condition C requires the licensee to take all reasonable steps to minimize or prevent effects associated with violations of the certification that may have an adverse effect on human health or the environment. Condition E permits an authorized agent of the Virginia State Water Control Board to: (a) access the licensee's property and records pertaining to the certification conditions; (b) inspect facilities and operations; and (c) sample or monitor substances, parameters, or activities to ensure compliance with the certification conditions. Condition F requires the licensee to furnish information as may be requested

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<sup>17</sup> See Part II, Conditions D, M, and N.

by the Control Board. Condition G provides for the monitoring of contaminants and pollutants, as well as maintaining appropriate monitoring records. Condition Q stipulates that it is unlawful for the licensee to discharge any substance into state waters (or otherwise alter the physical, chemical, or biological properties of state waters) and conduct certain activities in a wetland.

34. Condition H provides for the transfer of the certification to a new licensee. Condition I states that the certification does not convey property rights, nor authorize (a) injury to private property, (b) invasion of personal rights, or (c) infringement of any law or regulation. Condition K stipulates that compliance with the certification conditions constitutes compliance with certification requirements of the State Water Control Law, but does not relieve the licensee of responsibilities, liabilities, or other penalties established under other state law or regulation, or under the authority preserved by § 510 of the CWA. Condition L stipulates that the conditions of the certification are severable. Conditions O and P stipulate that the licensee is not exempt from civil and criminal liabilities or oil and hazardous substance liability, respectively.

35. Condition D stipulates that the issued certification may be modified, revoked and reissued, or terminated. Condition J provides that the issued certification may be reopened under certain conditions. Conditions M and N provide for the modification or termination, respectively, of the certification under certain instances.

### **COASTAL ZONE MANAGEMENT ACT**

36. Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA),<sup>18</sup> the Commission cannot issue a license for a project within or affecting a state's coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

37. As the Claytor Project is located outside Virginia's designated coastal zone and it is not likely to affect resources within the state's coastal area, the Virginia DEQ concluded that consistency certification is not required.<sup>19</sup>

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<sup>18</sup> 16 U.S.C. § 1456(c)(3)(A) (2006).

<sup>19</sup> See email correspondence between John Smith (Federal Energy Regulatory Commission) and Brenda Winn (Virginia DEQ) filed on March 11, 2010.

## **SECTION 18 FISHWAY PRESCRIPTION**

38. Section 18 of the FPA<sup>20</sup> provides that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate. No fishway prescriptions or reservations of authority were filed under section 18 of the FPA.

## **THREATENED AND ENDANGERED SPECIES**

39. Section 7(a)(2) of the Endangered Species Act of 1973 (ESA)<sup>21</sup> requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat.

40. The Virginia fringed mountain snail is a federally listed species with the potential to occur in the project area. In the draft EA, staff determined that relicensing the project as proposed is not likely to adversely affect the Virginia fringed mountain snail.<sup>22</sup> On March 3, 2011, FWS filed a letter concurring with this finding. Article 410 requires a fringed mountain snail management plan that includes measures to protect the snail.

## **NATIONAL HISTORIC PRESERVATION ACT**

41. Under section 106 of the National Historic Preservation Act (NHPA)<sup>23</sup> and its implementing regulations,<sup>24</sup> federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (defined as historic properties), and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Officer (SHPO) to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

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<sup>20</sup> 16 U.S.C. § 811 (2006).

<sup>21</sup> 16 U.S.C. § 1536(a) (2006).

<sup>22</sup> See draft EA at 5.

<sup>23</sup> 16 U.S.C. §§ 470 *et seq.* (2006).

<sup>24</sup> 36 C.F.R. Part 800 (2010).

42. To satisfy these responsibilities, the Commission executed a Programmatic Agreement (PA) with the Virginia SHPO and invited the Virginia Council on Indians, the Archeological Society of Virginia, and Appalachian Power to concur with the stipulations of the PA. None of the invited parties concurred. The PA requires the licensee to implement a Historic Properties Management Plan (HPMP) for the term of any new license issued for this project. Execution of the PA demonstrates the Commission's compliance with section 106 of the NHPA. Article 415 requires the licensee to implement the PA and its associated HPMP, with modifications. These modifications are discussed below in the Historic Properties Management Plan section of this order.

### **RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES PURSUANT TO SECTION 10(j) OF THE FPA**

43. Section 10(j)(1) of the FPA<sup>25</sup> requires the Commission, when issuing a license, to include conditions based on recommendations by federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act,<sup>26</sup> to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" affected by the project.

44. In response to the Commission's September 30, 2009 Ready for Environmental Analysis notice, the Virginia DGIF filed a letter on November 24, 2009, providing comments and terms and conditions for the Claytor Project, including 17 recommendations filed pursuant to section 10(j) related to Appalachian Power's proposed Water Management Plan, Water Quality Monitoring Plan, Freshwater Mussel Management Plan, and Aquatic Vegetation Management Plan. Of the 17 recommendations filed by Virginia DGIF, 10 were determined to be outside the scope of section 10(j) and are discussed elsewhere in this order.

45. This license includes conditions consistent with six of the seven recommendations that are within the scope of section 10(j): (1) operate in levelized flow mode from April 1 through November 30 with an average hourly minimum flow of 750 cfs, or inflow, whichever is less (Article 404 and certification condition I.D.2); (2) maintain reservoir levels between 1,845 to 1,846 feet NGVD from April 1 to June 30 (Article 404, certification condition I.D.2); (3) provide ramping rates by bringing individual generating units on-line every 15 minutes and off-line in 30-minute intervals (Article 404, certification condition I.D.2 and I.D.3); (4) discontinue the annual fall drawdown to protect mussels (Article 404, certification condition I.D.6); (5) implement the proposed Water Quality Monitoring Plan, as modified (Article 406, certification condition I.E.4);

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<sup>25</sup> 16 U.S.C. § 803(j)(1) (2006).

<sup>26</sup> 16 U.S.C. §§ 661 *et seq.* (2006).

and (6) include temperature and DO studies in the Freshwater Mussel Management Plan (Article 407, certification condition I.E.5).

46. If the Commission believes that any 10(j) recommendation may be inconsistent with the purposes and requirements of Part I of the FPA or other applicable law, section 10(j)(2) requires the Commission and the agencies to attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agencies.<sup>27</sup> If the Commission still does not adopt a recommendation, it must explain how the recommendation is inconsistent with Part I of the FPA or other applicable law and how the conditions imposed by the Commission adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources.

#### **A. Fall and Winter Flow Releases (Peaking Operation)**

47. As stated previously, Appalachian Power operates the project in peaking mode during the fall and winter and in a “levelized flow mode” in the spring and summer. To better address the needs of recreation users, Appalachian Power included a winter recreation flow provision in the Water Management Plan that specifies an increase in the minimum flow from the existing 750 cfs to 1,000 cfs from the December 1 through March 31 peaking period. Virginia DGIF recommended that Appalachian Power release 1,250 cfs or inflow (whichever is less) during December and January and 1,500 cfs or inflow (whichever is less) in February and March.<sup>28</sup> Virginia DGIF stated that its higher winter flows would more naturally mimic the long-term hydrograph than Appalachian Power’s proposed winter flows and would provide better base flows for aquatic species based on the results of an Instream Flow Incremental Methodology (IFIM) study.<sup>29</sup>

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<sup>27</sup> 16 U.S.C. § 803(j)(2) (2006).

<sup>28</sup> For this discussion we collectively refer to this measure as “higher winter flows.” See draft EA at 222.

<sup>29</sup> Virginia DGIF also recommended these higher flows for recreation reasons, stating that the higher winter flows would be particularly useful to those hunting from powerboats in the late fall and winter (December through February) and to anglers at the beginning of the season (March). The 1,000-cfs flows proposed by the licensee would benefit boating, float-based fishing, and powerboat-based fishing and hunting downstream from the project. As explained in the draft EA, however, the incremental benefit to recreationists of the higher winter flows proposed by Virginia DGIF would provide only a net, moderate benefit, while providing no benefit to whitewater boating, which also is a popular recreational activity during this period. Moreover, the resulting

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48. In the draft EA, staff made a preliminary determination that Virginia DGIF's higher winter flow recommendation was inconsistent with the comprehensive development and public interest standard of sections 10(a) and 4(e) of the FPA. In the draft EA, staff selected a subset of species life stages, including smallmouth bass juveniles, smallmouth bass adults, bigmouth chub adults, greenside darter juveniles, channel catfish, and muskellunge adults, that would be present during the winter. Staff's analysis indicated that the results of the IFIM study did not show significant differences in available habitat for these representative species between Appalachian Power's proposed 1,000-cfs minimum flow and Virginia DGIF's proposed higher winter flows, with many of the differences in available habitat within 1 or 2 percent of each other.<sup>30</sup>

49. By letter filed September 9, 2010, Virginia DGIF expressed an interest in meeting with Commission staff to discuss the issue of winter flows. Commission staff held a meeting by teleconference on November 8, 2010, to attempt to resolve the apparent inconsistency. During the teleconference, Virginia DGIF reiterated its position that based on the results of the IFIM, the higher winter flows would better mimic the long-term hydrograph and provide better base flows for aquatic species. In addition, Virginia DGIF stated that the IFIM study results demonstrated that its proposed higher winter flows provided additional habitat for the species included in the draft EA analysis, as well as one additional species, the northern hog sucker. In response, Commission staff requested that Virginia DGIF provide additional information (empirical or modeled) showing that the proposed higher winter flows would provide additional benefit to these fish species, based on the IFIM study.<sup>31</sup> In its comments on the 10(j) teleconference summary, filed on December 6, 2010, Virginia DGIF stated that it had no additional species specific information.

50. Absent any new information demonstrating how Virginia DGIF's proposed winter flow schedule would provide substantial benefits to aquatic species, staff found in the final EA that the additional cost of lost generation exceeded the benefits of the higher flow releases. Therefore, staff did not find the benefits of the increased minimum flow to be worth the annual cost.<sup>32</sup>

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decrease in the amplitude of peaking releases would have a negative effect on project economics and power generation [*see* draft EA at 151-157 and appendix C].

<sup>30</sup> *See* draft EA at 74-86 and 202-204.

<sup>31</sup> *See* Summary of 10j Meeting letter, issued November 22, 2010.

<sup>32</sup> *See* final EA at 245-246.

51. For the above reasons, this order concludes, in accordance with FPA section 10(j)(2)(A), that Virginia DGIF's recommendation for Appalachian Power to release 1,250 cfs or inflow (whichever is less) during December and January and 1,500 cfs or inflow (whichever is less) in February and March, is inconsistent with the comprehensive development and public interest standard of sections 10(a) and 4(e) of the FPA. In accordance with section 10(j)(2)(B) of the FPA, this order finds that a release of 1,000 cfs or inflow (whichever is less) in December and January and 1,200 cfs or inflow (whichever is less) in February and March<sup>33</sup> will adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources affected by this project.

### **SECTION 10(a)(1) OF THE FPA**

52. Section 10(a)(1) of the FPA<sup>34</sup> requires that any project for which the Commission issues a license shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce; for the improvement and utilization of water power development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

#### **A. State and Federal Agency Recommendations**

53. The Virginia DGIF made ten recommendations under section 10(j) that are not specific measures to protect, mitigate damages to, or enhance fish and wildlife. Consequently, this order does not consider these recommendations under section 10(j) of the FPA. Instead, this order considers these recommendations under the broad public-interest standard of section 10(a)(1).

54. The Virginia DGIF recommended three measures that relate to Appalachian Power's Water Management Plan, including: (1) lowering the reservoir during periods of high inflow to provide additional storage; (2) implementing a variance process for operation requirements to account for extreme events or emergencies; and (3) establishing a Water Quality/Water Management Plan technical review committee to annually review the plans. These provisions are discussed below in the Water Management Plan section of this order.

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<sup>33</sup> For December and January, the licensee recommended (and staff evaluated in the draft EA) a minimum flow of 1,000 cfs; however, the water quality certification requires a flow of 1,200 cfs, which was evaluated in the final EA.

<sup>34</sup> 16 U.S.C. § 803(a)(1) (2006).

55. The Virginia DGIF recommended one measure related to the Aquatic Vegetation Management Plan: consider providing monetary support for nuisance aquatic vegetation control in beneficial use areas. This recommendation is discussed below in the Aquatic Vegetation Management Plan section of this order.

56. The Virginia DGIF recommended three measures that relate to recreational resources, including: (1) honoring whitewater boater's requests for higher flows at McCoy Falls for special squirt boating events, (2) providing "modified levelized flows" during the recreation season, as needed, by storing water in Claytor Lake during the week to save it for weekend discharges to benefit whitewater boaters and powerboat-based anglers during the late summer/early fall, and (3) providing flow release reporting and better flow information to New River recreation users. These provisions are discussed below in the Recreation Management Plan section of this order.

57. The Virginia DGIF recommended three measures that relate to aquatic resources and adaptive management, including: (1) providing partial compensation for entrainment losses, (2) conducting a hellbender study, and (3) providing a fund to support projects initiated by the technical review committees. These provisions are discussed below in the Measures Not Related to Specific Plans section of this order.

## **B. Appalachian Power's Management Plans**

58. Appalachian Power's proposed operation and environmental measures are described throughout its 13 management plans, which are summarized below. In addition to summarizing the management plans and discussing the measures contained within the plans, the following section also discusses the measures recommended by agencies, commenters, stakeholders, and Commission staff.<sup>35</sup>

### **1. Erosion Monitoring Plan**

59. To address on-going erosion concerns, Appalachian Power developed an Erosion Monitoring Plan that includes provisions for: (1) monitoring areas identified as having erodible sands or saprolite soils, as shown on the revised shoreline material classification mapping; (2) monitoring ten sites along a segment of the New River extending 11.6 miles downstream of Claytor dam that were evaluated for the relicensing erosion study; (3) developing a demonstration project utilizing natural methods for stabilizing eroding shoreline on Claytor Lake; (4) identifying areas to be recommended for no-wake zones to address boating wake-related erosion, if determined from monitoring; (5) developing a report on the initial monitoring effort (and any subsequent monitoring); (6) forming a technical review committee; and (7) coordinating the Erosion Monitoring Plan with other

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<sup>35</sup> See final EA at 219-239.

proposed plans. After reviewing stakeholder comments on the June 2009 Erosion Monitoring Plan, Appalachian Power also agreed to include Skyline SWCD in the erosion technical review committee, given its interest and natural resource stewardship expertise.

### **1.i Quantifying Erosion**

60. As explained in the final EA, some erosion of the lake's shoreline is expected to continue with continued project operation, and some loss of land will likely continue due to shoreline retreat. Boat wakes are the predominant source of shoreline erosion at the project, with wind-driven waves being a secondary source. Water level fluctuations due to project operation, while not likely a significant source of erosion, are likely to increase the shoreline's susceptibility to wave-based erosion.<sup>36</sup>

61. The June 2009 Erosion Monitoring Plan includes activities that would help to reduce erosion effects by informing future decisions regarding erosion control efforts. The proposed erosion monitoring would assist Appalachian Power, government agencies, and affected landowners in managing erosion by identifying areas of high erosion. The proposed demonstration project, which would use natural shoreline stabilization techniques, would serve as an example that could lead to similar projects being implemented along the lake.<sup>37</sup>

62. As recommended by staff in the final EA, this license requires that the Erosion Monitoring Plan be modified to include provisions for installation and use of bank pins at New River erosion monitoring sites, in order to quantify the amount of bank erosion that occurs downstream of the project. This modification will provide erosion-rate information that will be helpful in developing effective erosion protection and remedial measures for project-related effects, should any be identified.

63. Article 402 requires implementation of Appalachian Power's June 2009 Erosion Monitoring Plan with the modification described above.

### **1.ii Lowered Lake Levels**

64. To minimize the effects of wave action on the shoreline, Skyline SWCD and Laura Bullard recommend that the lake level operating range be limited to 1,845.0 to 1,845.5 feet NGVD when increased boating is expected. Several shoreline residents recommend that the Commission require either that Appalachian Power protect the

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<sup>36</sup> See final EA at 45-47.

<sup>37</sup> See final EA at 221.

reservoir shoreline from erosion in highly erodible areas or provide funding to landowners that would be used for shoreline stabilization. The final EA did not recommend lowering the lake level within the proposed 1-foot operational range when increased boating is expected because existing offshore shelves<sup>38</sup> are effective in dissipating wave energy at water levels between 1,844 and 1,846 feet NGVD.<sup>39</sup> Therefore, lowering the lake to the levels recommended by the commenters would not reduce shoreline erosion. The final EA also did not recommend that Appalachian Power be required to stabilize the reservoir shoreline because the majority of on-going erosion is due to wave action (from boat wakes or wind action), which is not an effect from operating the project. For similar reasons, the final EA also concluded that Appalachian Power should not be required to provide funding to landowners that would be used for shoreline stabilization. Rather, the final EA concluded that Appalachian Power's proposed Erosion Monitoring Plan would provide a means to address erosion within the project boundary, mainly through on-going monitoring and development of an erosion control demonstration project along the shoreline. As such, this order does not require Skyline SWCD's and Laura Bullard's recommendations.

## 2. Sedimentation Monitoring Plan

65. Since the project was constructed, sediment has accumulated in Claytor Lake, which has decreased the lake's storage volume to a minor extent. Sedimentation is not uniform, but instead is concentrated in inlets and coves where tributary rivers and streams enter the lake while little sedimentation occurs in the main body of the reservoir.<sup>40</sup> In areas where sedimentation occurs, it can affect recreational access, both private and public.

66. To address sedimentation in Claytor Lake, Appalachian Power developed a Sedimentation Monitoring Plan, which includes provisions for: (1) monitoring areas of concern, including the headwaters of Claytor Lake from Allisonia boat ramp to above Lowman's Ferry Bridge (an 8.8-mile reach) and Peak Creek, a major tributary to Claytor Lake (a 5.8-mile reach), every 5 years over the term of a new license; and developing a report of the initial and subsequent monitoring efforts; (2) forming a technical review

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<sup>38</sup> Offshore shelves are created when waves move eroded material and sediment away from the shore, resulting in formation of a shelf, which is a wide, flat feature at the base of the eroding bank below the water surface. These offshore shelves would dissipate wave energy before reaching the shoreline, resulting in a reduction of shoreline erosion.

<sup>39</sup> See final EA at 220-221.

<sup>40</sup> See final EA at 37-38.

committee to review reports prior to filing with the Commission; and (3) coordinating the Sedimentation Monitoring Plan with other proposed plans. In response to comments on the draft EA, Appalachian Power also agreed to include Skyline SWCD in the sedimentation technical review committee as a relevant stakeholder, given its interest and natural resource stewardship expertise.

67. Sediment is expected to continue accumulating in Claytor Lake with continued project operation, primarily due to land use practices in the watershed outside the project boundary. As such, in the final EA, staff recommended that Appalachian Power implement the Sedimentation Monitoring Plan to address sedimentation concerns.<sup>41</sup> Additionally, as recommended in the final EA, in order to fully assess the impacts of the proposed project operation on sediment transport and provide a more effective management tool, this order requires that depositional areas in the New River downstream of the dam be included in the plan.<sup>42</sup> The extent of monitoring should include cross sections 1 through 6, which extend from Claytor dam to Route 114, Peppers Ferry Boulevard (an 11-mile reach). Expanding the study scope to include depositional areas will provide a better understanding of sediment transport at the project, and this data will make the plan more effective in achieving its objective of informing future management decisions by enhancing the comparative information necessary to distinguish operations-related deposition from deposition resulting from other processes.

68. Also, as recommended in the final EA,<sup>43</sup> this license requires that the monitoring reports identify what types of actions Appalachian Power would implement or under what conditions Appalachian Power would propose dredging at a recreation facility (e.g., standards for assessing the severity of the accumulation of sediment effect on public boating access, and to what degree the effect of sedimentation on boating access is acceptable before action would be taken by Appalachian Power).

69. For the reasons discussed above, Article 403 requires implementation of Appalachian Power's June 2009 Sedimentation Monitoring Plan with the modifications described above.

### **3. Water Management Plan**

70. Operation of the Claytor Project affects water uses within and downstream of the project. This is most evident during low-flow conditions, when maintaining sufficient

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<sup>41</sup> See final EA at 222.

<sup>42</sup> See final EA at 222.

<sup>43</sup> See final EA at 222.

flow for aquatic resources and recreational uses downstream of the project can lead to a drawdown of Claytor Lake, or, conversely, when ensuring that lake levels are adequate for recreation can reduce flows for downstream resources.

71. To address the effects of project operation on downstream flows and reservoir levels, Appalachian Power developed a Water Management Plan, which includes provisions for: (1) operating with minimum average hourly discharge flows, seasonal peaking, and defined reservoir levels; (2) releasing recreation flows for a specific whitewater competition in May, and during weekends in August, September, and October when inflow is between 800-1,000 cfs; (3) publishing flow release information on Appalachian Power's website; (4) providing for emergency drawdowns for maintenance requirements and a variance process for operational provisions and drawdowns; (5) providing for flood control operations, including notification requirements for upstream and downstream land owners, relevant agencies, and municipalities; (6) measuring water levels and flows in Claytor Lake and downstream of the dam; (7) monitoring and reporting of project operation; (8) forming a technical review committee; and (9) using adaptive management (*i.e.*, a 5-year review and update provision).

### **3.i Water Management and Aquatic Habitat**

72. Operation of the Claytor Project effects fish habitat in the New River downstream of Claytor dam.<sup>44</sup> To address these effects, Appalachian Power's Water Management Plan includes provisions for providing increased minimum flow releases when the project is in peaking mode from December through March (from the current 750 cfs to the proposed 1,000 cfs), maintaining minimum flows on an average hourly (instead of daily) basis, maintaining reservoir levels, and implementing ramping rates when the project is in peaking mode from December through March.

73. As discussed in the EA, operating the project with minimum average hourly flow releases versus minimum average daily flow releases would provide more continuous flows downstream of the project while protecting fish habitat in the reservoir and downstream.<sup>45</sup> Maintaining reservoir elevations earlier in the spring (April) during the levelized flow operation period would provide additional habitat to early spawning fish. When the project is operated in peaking mode from December through March, providing a 30-minute down ramping rate as generating units are brought off-line would prevent fish stranding downstream of the project. The increased minimum flows provided during the peaking season also would enhance fish habitat downstream of the project. During

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<sup>44</sup> See final EA at 86-105.

<sup>45</sup> See final EA at 222-224.

low-flow periods, the average hourly project discharge also is matched to inflow, to provide water downstream during times of drought. As such, article 404 of this order approves the June 2009 Water Management Plan, with modifications that require these provisions for the protection of aquatic habitat.

### **3.ii Water Management and Recreation**

74. The Claytor Project provides numerous recreational opportunities and the final EA found that the measures contained within the Water Management Plan would improve recreation opportunities at the project.<sup>46</sup> Increasing the minimum flow from 750 cfs to 1,000 cfs during the December 1 through March 31 peaking period, as proposed in the water management plan, would benefit boating, float-based fishing, and powerboat-based fishing and hunting downstream from the project. The additional 1,000-cfs minimum flow releases for recreation during weekends in August, September, and October would also benefit these recreation types, as well as tubing, during this typically dry period.

75. While these proposed flows are generally insufficient for whitewater boating, Appalachian Power includes a provision to provide planned whitewater releases during the annual squirt boating competition,<sup>47</sup> which would provide optimal flows for this event when they would otherwise not be available.

76. Additionally, Appalachian Power's proposal to provide flow release schedules (with 24-hour notice) would provide a useful service to recreation users who use flow information from gauges to decide when and where to take trips.

77. Through the plan's adaptive management component and technical committee reviews, stakeholders may recommend minor modifications and exercise flexibility within the parameters of the "levelized" and peaking modes.

78. As recommended in the final EA and because the proposed minimum flows are generally insufficient for whitewater boating, this order requires that the plan include a minimum of three special whitewater releases each year, including the squirt boating competition, to be scheduled annually in consultation with the technical committee. This license also requires that the flow notifications included on Appalachian Power's website, as stipulated by the plan, include publication of these release dates.

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<sup>46</sup> See final EA at 223-224.

<sup>47</sup> Squirt boating is a form of whitewater kayaking or canoeing that uses a boat specially-designed to be as low in volume as possible while still allowing the paddler to float.

### 3.iii Weekend Flow Releases for Recreation (Non-Peaking Operations)

79. Virginia DGIF recommended that Appalachian Power's proposed Water Management Plan contain a provision for a "modified" levelized flow release schedule (e.g., releases higher than 3,300 cfs) on weekends from August through October. Virginia DGIF states that this "modified" levelized flow would be achieved by storing water in Claytor Lake during the week to save it for weekend discharges to benefit whitewater boaters and powerboat-based anglers during the late summer/early fall.<sup>48</sup> Virginia DGIF also states that this mode of operation would more closely approximate the natural annual hydrograph, which would in turn create a more stable stream morphology and more natural river conditions.<sup>49</sup>

80. As explained in the final EA, while this mode of operation would increase opportunities for fishing from boats, scenic floating, and some whitewater activities, it most likely would exclude shore- and wading-based fishing and tubing, which are popular activities during the summer and early fall.<sup>50</sup> In addition, this mode of operation would result in a loss of generation towards the end of the week because flows would have to be stored by late Friday night to begin recreation releases at approximately midnight (to reach McCoy Falls around 8:00 a.m.). As recommended, Virginia DGIF's "modified" levelized flow would decrease the project's generation by 9.2 MWH/year, which would negatively affect project economics and generation, while providing only a slight benefit to whitewater boating and powerboat-based angling and decreasing opportunities for wading-based fishing and tubing. Instead, this license requires Appalachian Power to release a minimum flow of 750 cfs, or inflow (whichever is less), during the months of August and September; however, when the inflow rates average between 800 and 1,000 cfs during Monday through Friday, Appalachian Power would provide additional weekend flows, provided that the reservoir elevations are maintained between 1,845 and 1,846 feet NGVD. This requirement allows the project to utilize all available water for power generation from August through October, but provides for additional recreational releases when the extra water is available for release. Therefore, this order does not require Virginia DGIF's "modified" levelized flow recommendation.

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<sup>48</sup> See Virginia DGIF Preliminary Terms and Conditions, filed with the Commission on November 24, 2009.

<sup>49</sup> See final EA at 48.

<sup>50</sup> See final EA at 222-224.

### **3.iv Flow Release Reporting**

81. As described in the proposed Water Management Plan, Appalachian Power intends to provide flow information related to releases from the dam to the public via its website, [www.AEP.com](http://www.AEP.com). Appalachian Power aims to provide 24-hour notice of flow release schedules. Virginia DGIF supports Appalachian Power's proposal to provide better flow information for New River recreational users.

82. Also, as recommended in the final EA, the flow notifications on Appalachian Power's website would be more effective if the website includes additional information, such as flow arrival times and calculation tools, to help recreational users better predict the effects of project operation on recreation opportunities. Therefore, this license requires Appalachian Power to include tools for calculating downstream flow arrival times. This license also requires that Appalachian Power include available stage versus flow information, by boat launch, to aid the public in determining the suitability of scheduled releases to a particular activity. And finally, though it would be impractical for Appalachian Power to provide flow information more than 24 hours in advance, this license requires that Appalachian Power provide a description of the project's seasonal operational parameters, as defined by this new license, on the website, so that recreation users understand the potential range of flows and how best to take advantage of any increased minimum or specific flows.

83. Article 404 requires implementation of Appalachian Power's June 2009 Water Management Plan with the modifications described above.

### **4. Water Quality Monitoring Plan**

84. When Claytor Lake stratifies, as it does in the late spring through summer, water discharged from the dam can have low temperatures and DO concentrations. To address these operational effects, Appalachian Power developed a Water Quality Monitoring Plan. As part of the plan, Appalachian Power would: (1) use an existing deicing bubbler system (or develop alternative measures, if necessary) to increase the DO in the water discharged into the tailrace during July through September; (2) monitor and assess DO enhancement measures on DO in the tailrace for 5 years following license issuance; (3) monitor DO and temperature in the reservoir near the forebay once per year for 5 years following license issuance; (4) form a technical review committee to assess the results of the monitoring; (5) develop and issue annual reports documenting the results of the monitoring and any recommendations for additional measures; and (6) coordinate the 5-year monitoring efforts with other on-going water quality monitoring programs.

85. The final EA found that the provisions of Appalachian Power's proposed Water Quality Monitoring Plan would generally address water quality concerns at the project.

As recommended in the final EA, however, this order requires three modifications to the plan that would enhance its value as a monitoring and management tool.<sup>51</sup>

86. This order requires that the Water Quality Monitoring Plan specify a location and method for measuring DO upstream from the project (e.g., at the Allisonia gage, located upstream of Claytor Lake). Appalachian Power's Water Quality Monitoring Plan requires it to identify depressed DO conditions caused by the project (less than 5.0 milligrams per liter apart from inflow), however, it does not include similar DO monitoring methods both upstream from the project and in the tailrace. Thus, this order requires continuous monitoring for DO at the Allisonia USGS station from March 1 to November 1 in order to effectively identify depressed DO conditions caused by the project.

87. This license also requires that the Water Quality Monitoring Plan include a schedule for implementing alternative low DO mitigation measures, if the proposed deicing bubbler system fails to ensure that the DO in the project tailrace meets state standards. If Appalachian Power's proposed deicing bubbler fails to adequately raise low DO in the tailrace, this license requires Appalachian Power to develop alternative measures within 120 days of the conclusion of an effectiveness study and propose a new mitigation measure. This requirement would ensure that there is continual progress made in addressing low DO and its water quality implications in the New River.

88. As recommended in the final EA, this license also requires that the Water Quality Monitoring Plan include continuous monitoring of DO and temperature at five locations downstream of the project to the Route 11 bridge for 5 years. The additional monitoring would help to determine how far downstream low DO from project discharges affect aquatic resources.

89. Article 406 requires implementation of Appalachian Power's June 2009 Water Quality Monitoring Plan with the modifications described above.

## **5. Freshwater Mussel Adaptive Management Plan**

90. To address operational effects on mussels located in the New River, both upstream and downstream of the dam, Appalachian Power proposed to implement a Freshwater Mussel Adaptive Management Plan, which includes provisions for: (1) compiling baseline data on mussel distribution and abundance in order to identify sites for long-term monitoring; (2) evaluating long-term trends in mussel fauna downstream of the project including species richness, abundance, growth, and recruitment; (3) evaluating potential influence of water quality of project releases on mussel fauna downstream of the project,

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<sup>51</sup> See final EA at 225-226.

with particular focus on water temperature and DO; (4) forming a technical review committee to meet annually to review data collected during the previous year, and evaluate additional data requirements, and (5) reporting to the Commission on the outcome of the meetings. In response to comments on the draft EA, Appalachian Power also agreed to include in the plan a provision to conduct hourly DO and temperature readings at the mussel monitoring locations for 1 year.

91. The final EA concluded that long-term monitoring of mussel species richness, abundance, growth, and recruitment under different flow regimes would provide useful information about possible project-related impacts to freshwater mussels.<sup>52</sup> As recommended in the final EA, this license also requires that the literature review and annual report include the results of the Virginia Tech mussel study.<sup>53</sup> The annual report also will include the raw data, an analysis summarizing the data, and recommendations for changes to the plan, project operations, or additional mitigation measures if necessary. Finally, this license requires that the plan include a description of the equipment for monitoring water quality at the long-term mussel monitoring sites, how the equipment would be calibrated, and how the data would be stored.

92. Article 407 requires implementation of Appalachian Power's June 2009 Freshwater Mussel Adaptive Management Plan with the modifications described above.

## **6. Aquatic Vegetation Management Plan**

93. Non-native, invasive aquatic vegetation, such as *Hydrilla*, can have undesirable economic and environmental effects, and surveys have documented the presence of *Hydrilla* in certain areas of Claytor Lake.

94. To address the aquatic vegetation issues at the project, Appalachian Power developed an Aquatic Vegetation Management Plan. The goal of the plan is to ensure that aquatic vegetation, particularly invasive species, does not increase to nuisance levels. The plan includes a monitoring component, a consultation process, and limited control measures and is meant to be an integrated management strategy for aquatic weed control

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<sup>52</sup> See final EA at 226-227.

<sup>53</sup> See Virginia DGIF's Preliminary Terms and Conditions, filed pursuant to section 10(j) on November 24, 2009. The low DO that at times occurs as a result of the Claytor tailrace discharge could impact mussel populations downstream of Claytor dam. Virginia Tech currently is conducting a study to evaluate the effects of low DO on mussels and the results of the study would provide an indication of how low DO may affect mussel populations downstream of the Claytor Project.

at the project.<sup>54</sup> The final EA found that implementing the proposed plan would: (a) help control and prevent the spread of invasive aquatic vegetation in Claytor Lake; and (b) assist Appalachian Power, the Virginia DGIF, and other stakeholders in managing the lake's aquatic vegetation as important fish habitat.

### **6.i Notifying Adjacent Landowners of Herbicide Applications**

95. In the final EA, staff recommended that the proposed Aquatic Vegetation Management Plan be modified to include a provision requiring entities planning to apply treatments to control these species to obtain a permit from Appalachian Power to do so and to notify adjacent landowners of planned spot treatments of herbicides (with the notification period to be worked out by the Aquatic Vegetation Technical Review Committee).<sup>55</sup> The final EA found that the notification measure would ensure adjacent landowners are aware the treatment is going to occur and provide these landowners an opportunity to take any necessary precautions on their own land. The EA also found that Appalachian Power's control of aquatic vegetation at public boat ramps and other public access sites would help ensure that invasive aquatic vegetation does not inhibit public access at the project.<sup>56</sup>

96. Article 408 requires implementation of Appalachian Power's June 2009 Aquatic Vegetation Management Plan with the modifications described above.

### **6.ii Funding for Nuisance Aquatic Vegetation Control**

97. The Virginia DGIF recommended that Appalachian Power's Aquatic Vegetation Management Plan be modified to include a provision for providing the agency with monetary support for the control of nuisance aquatic vegetation. The Aquatic Vegetation Management Plan required by Article 408 includes a provision for controlling nuisance

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<sup>54</sup> Under the plan, Appalachian Power would: implement an ongoing methodology to identify and map aquatic vegetation in the lake; manage and control non-native invasive vegetation in the lake to minimize impacts to fish, wildlife, habitats, and recreation; identify and promote native, desirable aquatic vegetation; prioritize control sites and determine control plans; establish a permitting process; educate the public; and identify methods to prevent introduction of non-native vegetation and other non-native species to the lake and from the lake to other water bodies.

<sup>55</sup> Spot treating are those instances where landowners need to treat the areas around their dock or swimming areas for invasive aquatic vegetation.

<sup>56</sup> See final EA at 227.

aquatic vegetation in beneficial use areas.<sup>57</sup> The plan also includes provisions for determining appropriate control measures; educating the public; and identifying methods to prevent introduction of non-native vegetation and other non-native species to the lake and from the lake to other water bodies. Collectively, these measures should be sufficient to control and prevent the spread of nuisance aquatic vegetation at the project. Therefore, this order does not require Virginia DGIF's recommendation for funding nuisance aquatic vegetation control.

## 7. Habitat Management Plan

98. To protect and enhance valuable shoreline habitat at the project, Appalachian Power developed a Habitat Management Plan that includes provisions for:

(1) prohibiting or limiting construction of boat docks or other structures in areas where wetlands, woody cover, bald eagle habitat, and tributary streams are found, and in areas identified by the Virginia Natural Heritage Program under the Shoreline Management Plan; and where construction of these structures is authorized, requiring measures for ameliorating the loss of habitat due to shoreline disturbance associated with development; (2) developing a demonstration project that has a dual benefit of erosion control and habitat improvement; (3) undertaking habitat enhancement projects for Claytor Lake (annual cost of approximately \$5,000); (4) forming a technical review committee to assist in implementing items (2) and (3); (5) monitoring, consulting, and reporting on habitat projects; (6) educating the public on the importance of habitat, measures that individuals can undertake to improve habitat along the shoreline, and opportunities to partner on habitat enhancement projects; and (7) using adaptive management and coordinating the Habitat Management Plan with other proposed plans.

99. In the final EA, staff concluded that the proposed plan would protect and enhance bald eagle and riparian habitat at the project.<sup>58</sup>

100. Article 409 requires implementation of Appalachian Power's June 2009 Habitat Management Plan.

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<sup>57</sup> Beneficial use areas include public access boat ramps; Claytor Lake State Park; sites of public water withdraws by Pulaski County Public Service Authority (within Claytor Lake), American Electric Company's Glen Lyn power plant (downstream of Claytor Lake), the Town of Pulaski (Peak Creek), and the City of Radford (downstream of Claytor Lake); Harry Dehaven Park; sensitive habitat areas for fish and wildlife; fishing piers and designated bank fishing areas; and sites designated for future recreation.

<sup>58</sup> See final EA at 228.

## **8. Fringed Mountain Snail Management Plan**

101. To protect any federally endangered Virginia fringed mountain snails at the project, Appalachian Power proposed to implement a Fringed Mountain Snail Management Plan, which includes provisions for: (1) annually inspecting the six sites at the project identified as potential habitat; (2) conducting an inventory for fringed mountain snail if there is a proposal to modify the current use of any of the six sites; and (3) provisions for consultation and approvals by FWS, Virginia DGIF, Virginia DCR, and the Commission.

102. In the final EA, staff found the monitoring required by the Fringed Mountain Snail Management Plan, along with the zoning-related counterpart measures in Appalachian Power's Shoreline Management Plan, would protect any Virginia fringed mountain snails at the project.<sup>59</sup>

103. Article 410 requires implementation of Appalachian Power's June 2009 Fringed Mountain Snail Management Plan.

## **9. Recreation Management Plan**

104. Recreational access at the project is available at seven public sites, two commercial marinas, and two tracts of land that Appalachian Power has reserved for future recreational development. Three of the public recreation sites (the New River Access boat launch, the Appalachian Power Group Picnic Area at Claytor dam, and the Allisonia boat launch) and the two reserved tracts of land are project facilities. The remaining four sites that offer public access are: (1) Lowman's Ferry, which is privately owned; (2) Harry DeHaven County Park, which is owned jointly by Pulaski County and Appalachian Power; (3) Dublin boat launch, which is owned by Virginia DCR; and (4) Claytor Lake State Park, which is owned by Virginia DCR. These four sites are not project facilities, but each site offers direct water access.

105. To provide adequate public access at the project, Appalachian Power developed a Recreation Management Plan, which includes provisions for: (1) enhancing existing facilities and providing a picnic area at the Allisonia boat launch; (2) enhancing existing facilities, providing a picnic area, and improving bank fishing access at the New River Access site below Claytor dam; (3) enhancing Appalachian Power's existing picnic area with the addition of a boat launch, courtesy pier, and trailer parking; (4) installing portage facilities around the west end of the dam, following consultation on the portage trail route, that would include a take-out at the Appalachian picnic area, a portage trail, and a new downstream portage put-in; (5) continuing to designate two sites for future

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<sup>59</sup> See final EA at 228-229.

recreational development (*i.e.*, 41.5-acre Peak Creek Site No. 1 and 78-acre Peak Creek Site No. 2); (6) managing recreational use of the project area in the future through establishment of a technical review committee that would review the results of recreational use monitoring (every 6 years), establish criteria to evaluate and prioritize the need for additional facilities and amenities at existing public access sites and/or new facilities at the project, and recommend any necessary plan revisions.

### **9.i Schedules for Recreation Facility Enhancements**

106. In the final EA, staff recommended that Appalachian Power revise its proposed Recreation Management Plan to include a detailed schedule for providing a boat ramp, fishing pier, and trailer parking area at Appalachian Power's picnic area, as well as a schedule and procedure for consultation regarding the establishment of the new portage put-in downstream from the dam and a portage trail leading from the picnic area to this put-in. Also, staff recommended that section 3.0 of the recreation plan, concerning management and monitoring measures, be updated to include details describing a maintenance schedule for trash and waste disposal and any other necessary maintenance measures (for parking lots, piers, docks, boat ramps, and picnic areas). The final EA found that with these modifications, the Recreation Management Plan would improve public access and recreation opportunities at the project.<sup>60</sup>

107. Article 411 requires implementation of Appalachian Power's June 2009 Recreation Management Plan with the modifications described above.

### **9.ii Recreation Use Survey**

108. Appalachian Power's Recreation Management Plan includes a provision for conducting recreational use monitoring every 6 years, in conjunction with the Commission's required Form 80 recreation reporting requirements. The Virginia DGIF, however, is concerned that 6 years is too long an interval between recreational use surveys, and recommended that the recreation technical review committee consider a higher frequency. In the final EA, staff found that recreation use surveys conducted every 6 years would provide adequate data to assess recreation use trends and make decisions regarding the need for new facilities.<sup>61</sup> Therefore, this order does not require a higher frequency of recreation use surveys, as recommended by the Virginia DGIF.

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<sup>60</sup> See final EA at 229-230.

<sup>61</sup> See final EA at 239.

## 10. Debris Management Plan

109. To maintain recreational access and aquatic habitat at Claytor Lake, Appalachian Power developed a Debris Management Plan, which includes provisions for: (1) continuing the existing debris removal process at Claytor Lake by contracting with either FOCL or other contractors as necessary to remove floating debris during the months of April through October on a regular schedule; (2) using sites owned by Appalachian Power or at commercial or private access areas for the off-load and disposal of debris and identifying replacement sites should the currently used sites become unavailable during the term of the license; (3) continuing Appalachian Power's involvement in volunteer lake clean-up efforts; coordinating with FOCL, Pulaski County, Virginia DGIF, Virginia DEQ, and Virginia DCR to implement the educational provisions of the plan; developing an annual report documenting debris removal efforts; and (4) forming a technical review committee to review the annual report and provide recommendations and comments; and modifying the plan, as necessary, after approval by the Commission.

110. The final EA found that Appalachian Power's proposed plan provides a mechanism to manage debris in such a way that addresses boater safety and access, while maintaining sufficient habitat for aquatic species.<sup>62</sup>

111. Article 412 requires implementation of Appalachian Power's June 2009 Debris Management Plan.

## 11. Aids to Navigation Management Plan

112. To provide for delineation of the navigable channel, Appalachian Power developed an Aids to Navigation Management Plan, which includes provisions for: (1) installing and maintaining 68 lateral aids to navigation<sup>63</sup> upon approval by Pulaski County and Virginia DGIF;<sup>64</sup> (2) analyzing the cost and effectiveness of the installation of bridge lighting or markings on the Lowman's Ferry Bridge and the train trestle; (3) developing an educational program and efforts to warn mariners of unusually heavy debris and high or low water; (4) coordinating with Pulaski County and FOCL to update

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<sup>62</sup> See final EA at 230.

<sup>63</sup> Lateral markers are buoys or beacons that indicate the port and starboard sides of the marked navigation route.

<sup>64</sup> As explained in the Aids to Navigation Plan, the U.S. Coast Guard has delegated its authority in this area to Virginia DGIF, which requires the county's review of the licensee's proposed installation plan.

navigation maps of Claytor Lake; (5) including within the Shoreline Management Plan the Coast Guard's requirements for amber lighting on certain docks; (6) implementing an "Adopt a Marker Program" for additional monitoring of markers on Claytor Lake; (7) forming a technical review committee to assist in implementing the plan; and (8) coordinating the Aids to Navigation Management Plan with other proposed management plans. Based on comments on the draft license application, Appalachian Power also agrees to publish information with regards to height restrictions for sailboats.

113. In the final EA, staff recommended that if any height restrictions for sailboats occur within the navigable channel, the plan should be updated to include this information, as well as measures to mark these locations, as determined in consultation with the technical review committee.

114. As explained in the final EA, implementing the navigation plan, in consultation with the technical committee and coordinating the plan with other proposed plans would contribute to boating safety on the lake and contribute to the overall safety associated with recreational use of the project waters.<sup>65</sup>

115. Article 413 requires implementation of Appalachian Power's June 2009 Aids to Navigation Management Plan with the modifications described above.

## **12. Shoreline Management Plan**

116. To protect shoreline uses and resources at the project, Appalachian Power proposed to consolidate its existing permitting and various resource management programs into a single comprehensive plan for resource protection through shoreline classifications and development planning through permitting and regulations of shoreline uses. The resultant Shoreline Management Plan, which was developed by Appalachian Power and the working group, includes: (1) a description of shoreline conditions, based on the results of relicensing studies; (2) a shoreline classification system; (3) requirements and guidelines for shoreline management, such as permitted structures and activities within shoreline classifications, shoreline stabilization requirements, vegetative cover requirements, and provisions regarding woody debris and cultural resources; and (4) implementation procedures, including permitting responsibilities, fees, variance procedures, enforcement, and provisions for a 5-year review and update process.

### **12.i Dock Size Regulations**

117. Residents at the project have had issues with the Shoreline Management Plan requirements throughout the licensing process. Generally, their concerns focus on:

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<sup>65</sup> See final EA at 231.

(1) dock-size limitations of 1,000 square feet for individual docks, which the residents feel is too small; (2) dock size limitations of 500 square feet for individual docks on steep slopes, which the residents feel is too restrictive; (3) a dock height restriction of 16 feet, which the residents claim does not allow them to place a roof over the main dock space and boat lifts; (4) a storage area size limitation of 48 square feet, which the residents claim is not adequate for boating-related storage. The residents have requested that the SMP not be approved and that the working group spend more time refining the Shoreline Management Plan.

118. In its reply comments to the REA notice,<sup>66</sup> Appalachian Power responded to the residents concerns by providing background on the collaborative nature of the guideline development and providing the rationale for the proposed dock specifications, stating that they were developed to protect the scenic integrity of the lake. Appalachian Power goes on to state that in order to continue to provide for boating use on the lake, simple, single-level docks far less than 1,000 square feet would likely suffice; however, Appalachian Power provided for a dock size of up to 1,000 square feet in deference to the historic, multi-use nature of docks at Claytor Lake. In this letter, Appalachian Power also proposed to amend the guidelines to better suit the residents needs and requested that language stating that the square footage of the dock "...shall be calculated utilizing the structure, the open slip area and all existing upland improvements within the project boundary" be revised to state that the calculation excludes "...one walkway from the project boundary to the dock." In the final EA, staff found that Appalachian Power's request to modify its regulations to exclude the walkway from the calculation would allow approximately 500 square feet of total deck space, excluding the walkway and boat slips, to be available to support other uses.<sup>67</sup>

119. In comments on the draft EA,<sup>68</sup> Appalachian Power again responded to resident concerns on the dock specifications, stating that the plan does not dictate how dock space is to be utilized, but allows the dock owners to design the dock to best meet individual needs. Appalachian Power also clarified that the limit of the dock size square footage to 500 square feet on steep slopes was to keep some of the shoreline open and a portion of the shallow-water habitat (which already is limited in steep slope areas) undisturbed. In the final EA, staff found that, because this regulation is both a means to protect the

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<sup>66</sup> See Appalachian Power's *Reply Comments to Comments in Response to REA Notice*, filed on January 8, 2010.

<sup>67</sup> See final EA at 191-193.

<sup>68</sup> See Appalachian Power's *Comments on the Draft Environmental Assessment*, filed on September 10, 2011.

shoreline while still providing residents the ability to access the lake, it is an appropriate requirement.<sup>69</sup>

120. As stated in the final EA, every lake is unique and the guidelines developed by each applicant should address local resources and needs. While some of the stipulations included in other FERC-approved Shoreline Management Plans might provide greater flexibility in dock size and design, Claytor Lake is a smaller, longer, and narrower reservoir that offers a different user experience than what is offered at other, larger reservoirs nearby. The measures contained within the Shoreline Management Plan were developed collaboratively and are meant to protect Claytor Lake's scenic and recreation integrity, which was identified during the relicensing studies as being important to residents and visitors alike.

121. The final EA concluded that the proposed Shoreline Management Plan would benefit the various resources affected by land management activities, such as land-clearing, construction, and any resulting increased traffic and use. Staff found that the plan's impact minimization zones and conservation/environmental classifications directly benefit significant recreational, ecological, aesthetic, and cultural resources at the lake by protecting them from inappropriate development. The plan also allows for continued shoreline use and access while protecting existing recreational uses and public safety through control of the size, density, and placement of docks and piers. In addition, the plan provides for permitted uses beyond what is allowed for by the Commission's standard land use article. Thus, the final EA concluded that an approved Shoreline Management Plan would provide Appalachian Power with the authority to permit such activities without requesting a license amendment or other order from the Commission.<sup>70</sup>

122. As such, article 414 approves the June 2009 Shoreline Management Plan with these modifications.

### **12.ii Low Density Use Regulation Waivers**

123. Section 2.5.4, *Low Density Use*, and section 2.5.6, *Steep Slope Protection*, address where single family residential docks may be located. Paragraph 4 of those sections states that "all structures shall be constructed between the property owner's lot lines extended into project lands and into the waters. If an extended lot line does not affect fair division of the shoreline with an adjoining neighbor then the two property owners can mutually agree in a written document to a revised extended lot line." Paragraph 5 of those sections states that "all structures must maintain a setback of at least 15 feet from

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<sup>69</sup> See final EA at D-33.

<sup>70</sup> See final EA at 231-233.

the adjoining property owner's lot line extended onto Appalachian Power's project lands and the water. Appalachian Power may allow construction between the setback line of 15 feet and the extended lot line if the adjoining property owner(s) grants his written permission and, in the opinion of Appalachian Power, the construction will not affect unfair use of the shoreline." Paragraphs 4 and 5 also require that the written agreement shall be permanently recorded in the Office of the Clerk of the Pulaski County Circuit Court.

124. Appalachian Power proposed to amend these regulations, however, to remove references to filing the agreement or waiver with the Court Clerk and instead would require that the waiver or agreement be permanently filed only with Appalachian Power.<sup>71</sup> The rest of each paragraph would remain unchanged. Appalachian Power states that this amendment is necessary so the company, as the project licensee, can retain the ability to ensure that agreements and waivers are appropriate and properly obtained. The company also clarifies that the waiver process defined by Appalachian Power does not affect land ownership issues, but serves to clarify where docks may be located. In the final EA, staff found that this modification is minor, does not affect land ownership, and only modifies the language to require all permits to be filed directly with Appalachian Power. As Appalachian Power is the licensee with authority over shoreline

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<sup>71</sup> In the June 2009 Shoreline Management Plan, the original language for paragraphs 4 and 5 in both sections 2.5.4, *Low Density – Single Family Residential*, and 2.5.6, *Steep Slope Protection*, stated that the "agreement or waiver shall be in recordable form and be permanently recorded in the Office of the Clerk of Pulaski County Circuit Court by the property owner and permanently filed with Appalachian." In its January 8, 2010 *Reply Comments to Comments in Response to REA Notice*, Appalachian requested the language of paragraph 5 in both sections 2.5.4 and 2.5.6 be revised to state that the "signed and notarized waiver shall be submitted to Pulaski County with the dock application and filed with Appalachian Power." Then, in its September 10, 2010 *Comments on the Draft Environmental Assessment*, Appalachian Power requested further modification to the language, deleting all reference to filing the agreement with Pulaski County. The October 10, 2010 letter also requested that this modified language be included in paragraph 4, as well as paragraph 5. In the letter, however, Appalachian Power only requested this modification be made to section 2.5.4, *Low Density – Single Family Residential*, and made no reference to section 2.5.6, *Steep Slope Protection*. As the language in paragraphs 4 and 5 of these two sections is identical, this order assumes that Appalachian Power intended for the modification to be applied to both sections.

improvements, this modification is acceptable and article 414 of this order approves the June 2009 Shoreline Management Plan with these modifications.<sup>72</sup>

### **12.iii Shoreline Stabilization Regulations**

125. Appalachian Power included revised shoreline stabilization guidelines within the Shoreline Management Plan. These guidelines provide preferred types of erosion mitigation concepts, applicable locations/scenarios, criteria for shoreline stabilization techniques, and design standards for riprap and bulkheads. Specifically, native vegetation planting and other bioengineering methods (e.g., live staking, natural fiber matting) are preferred, but alternative methods may be considered. The use of bulkheads would be allowed as a last resort.

126. The residents, however, state that the plan's shoreline stabilization requirements are too restrictive. They disagree with Appalachian Power's preference of using vegetation, bioengineering, and riprap for shoreline stabilization and argue that erosion control using bulkheads should be allowed as a cost effective, easily implemented method that requires less disturbance of the shoreline.

127. As stated in the final EA, the Shoreline Management Plan allows for a variety of different erosion control measures and materials, including the use of riprap, with bulkheads identified as a last resort.<sup>73</sup> These measures are intended to protect habitat along the shoreline, as well as the scenic integrity of the lake. While erosion itself can have a negative effect on project aesthetics, shoreline protection measures such as bulkheads and retaining walls can also detract from scenic values. The use of native vegetation and other bioengineering methods would benefit both habitat and scenery at the project. Bulkheads, on the other hand, tend to exacerbate wave action outside the area where the bulkhead is located, could impede shoreline access, and could adversely affect wildlife habitat in the buffer zone. As such, article 414 of this order does not require the modifications requested by the residents.

### **12.iv Variance Process**

128. Section 3.3, *Variance Process*, establishes the process for seeking a variance from the regulations or classifications in the Shoreline Management Plan. Appalachian Power will consider variance requests on a case-by-case basis. An applicant for a variance must include in its application evidence that it has notified all adjoining property owners and Pulaski County and provided them 30 days to comment on the request. If the variance

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<sup>72</sup> See final EA at 232.

<sup>73</sup> See final EA at 193.

request is consistent with the requirements of the license and the intent of the Shoreline Management Plan, Appalachian Power will prepare an environmental assessment for the proposed action and forward it and the application to appropriate state and federal agencies and allow 30 days for comment. Once the comments are received, Appalachian Power will review the record. If Appalachian Power decides that the variance should be granted, it will forward the application and comments to the Commission for approval. If Appalachian Power decides to not grant the variance, it will inform the applicant of its decision, and there would be no need to send the application to the Commission.

129. Additionally, and as recommended in the final EA, in order to address landowner concerns regarding dock size limitations and shoreline stabilization methods, this license requires that section 3.3, *Variance Process*, be revised to provide a more detailed description and justification for the dock size and shoreline stabilization guidelines and the specifications for seeking a variance. Including a variance process in the guidelines affords Appalachian Power and the landowners an opportunity for flexibility. Providing more detail regarding the variance process and cases where Appalachian Power might consider an exception to the Shoreline Management Plan guidelines would make lakeside property owners more aware of the specific types of cases that Appalachian Power might consider as acceptable cases to forward to the Commission for approval. This more detailed information will help to inform landowners and regulators as to the purpose behind the dock size and shoreline stabilization specifications, and also will provide a better understanding of when a variance might be granted. As such, article 414 of this order approves the June 2009 Shoreline Management Plan with these modifications.<sup>74</sup>

#### **12.v Fifty Percent Rule**

130. Several paragraphs under sections 2.5.4, *Low Density Use*, including paragraph 22 under Single Family Residential, paragraph 19 under Low Density Multi-Use, and paragraph 15 under Low Density Commercial, as well as paragraph 24 in section 2.5.6, *Steep Slope Protection*, provide that “if maintenance requires more than 50% of a physical structure to be replaced or repaired, then the structure must conform to the new requirements.” This language, however, is ambiguous because it does not address how the 50-percent rule is to be applied (e.g., does it apply only in cases where more than 50 percent of a structure is repaired at one time, or is the 50 percent cumulative?). As such, this license requires Appalachian Power to consult with stakeholders to determine the best manner for carrying out the 50-percent rule and file an application to amend the Shoreline Management Plan to clarify the manner in which the rule is to be applied.

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<sup>74</sup> See final EA at 232.

### 12.vi Consultation

131. Section 3.5, *Shoreline Management Plan Review and Update*, states that the reviews will be accomplished through consultation with a group of stakeholders similar to the steering committee; however, the plan does not specify which entities will be included in the consultation. In order to ensure that all interests are represented during any reviews of the Shoreline Management Plan, this license requires Appalachian Power to consult with, at a minimum, U.S. Army Corps of Engineers, Virginia Department of Health, Virginia DGIF, Virginia DEQ, Virginia DCR, Virginia DHR, Pulaski County, and FOCL. As such, article 414 requires implementation of Appalachian Power's June 2009 Shoreline Management Plan with this modification.

### 13. Historic Properties Management Plan

132. To protect cultural resources at the project, Appalachian Power developed an HPMP that contains: (1) information on cultural resources at the project, including maps of the area of potential effect and archaeological sites; (2) preservation goals and priorities; (3) project effects and mitigation/management measures; (4) implementation procedures; and (5) a list of activities that do not adversely affect historic properties. In addition to the HPMP, Appalachian Power proposed to protect significant cultural resources at the project through the Shoreline Management Plan's *Impact Minimization Zones*. Development in these zones would be limited, but possible, based on a review of the Shoreline Management Plan and any necessary mitigation. Further, Appalachian Power proposed, as a component of the Erosion Monitoring Plan, to entertain requests for no-wake zones in areas experiencing high erosion due to boat wakes. This would include shoreline areas containing sensitive cultural resources that are experiencing erosion.

133. On December 1, 2010, Commission staff issued a draft PA for public comment. In response to the draft PA, the Virginia SHPO provided several comments and recommendations related to the HPMP. While most of the comments are general or editorial in nature and would not affect the overall intent of the HPMP, the final EA found that they would provide for a more complete document. To address the comments made by the Virginia SHPO, the final EA recommended the following revisions to the HPMP: (1) in section 1.2 of the HPMP, *Purpose*, include Pulaski County and the local historical society in the fifth bullet; (2) revise section 4.3 of the HPMP (*Project Effects and Mitigation/Management Measures, Future Effects*) to specify the materials the SHPO would need for review; (3) address the typographical and editorial comments on the HPMP from the Virginia SHPO's January 13, 2011 letter; (4) in Appendix D (*List of Activities that Do Not Require Prior Consultation with the SHPO*) under Powerhouse, remove "or upgrade" from the bullet dealing with in-kind repair of historic windows and doors; (5) update section 2.4.2 of the HPMP (*Recommendations for Future Work*) to include a statement regarding the need for future consultations on contributing and non-contributing elements of the Claytor powerhouse; (6) in section 5.4 (*Protection of Discovered Human Remains*), include the language from the Virginia SHPO's

January 13, 2011 letter that addresses the process to follow if a gravesite is disturbed; (7) in sections 5.6 and 5.7 of the HPMP, remove references to the Advisory Council on Historic Preservation.<sup>75</sup>

134. As these revisions and modifications would present a more thorough and complete HPMP, article 415 of this order requires approval of the HPMP with the revisions and modifications discussed above.

## **C. Measures Not Related to Specific Plans**

### **1. Funding for Entrainment Losses**

135. Virginia DGIF estimated that losses of recreationally important fish through the project due to entrainment is significant and recommended that Appalachian Power provide partial compensation for losses to striped bass and hybrid striped bass, whose populations are maintained by stocking. Virginia DGIF states that the cost to stock fingerlings of these two species in 2008 was about \$28,000. Based on the staff analysis in the final EA, despite the probability for relatively high entrainment rates for prey species such as alewife and gizzard shad and the likely entrainment of some of the popular pelagic sport species, the fishery at Claytor Lake remains productive. The effects on the fishery due to entrainment appear to be minimal for most fish populations, and the sport fishery in project waters is very popular and highly pursued, with many citations for trophy fish awarded for numerous species. Furthermore, it is Commission policy to recommend specific environmental measures for inclusion in a license because requiring only the funding of a measure does not provide assurance that the measure will be carried out in such a way as to ensure mitigation of project impacts or purposes.<sup>76</sup> Therefore, this order does not require Virginia DGIF's recommendation to provide funding for stocking striped bass and hybrid striped bass.

### **2. Hellbender Monitoring**

136. Virginia DGIF recommended that Appalachian Power conduct long-term monitoring of the hellbender salamander to determine its habitat requirements, distribution, and status below Claytor dam.<sup>77</sup> Although long-term monitoring under an

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<sup>75</sup> See final EA at 198-202 and 233-235.

<sup>76</sup> For more information regarding the Commission's policy, please see the Commission's Policy Statement on Hydroelectric Licensing Settlements, issued September 21, 2006.

<sup>77</sup> The state-listed hellbender is a large, stout-bodied, fully-aquatic salamander species that requires clear, fast-moving, well-oxygenated streams and rivers and is found  
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adaptive management approach is an appropriate strategy for measuring population responses of certain species to license conditions and providing a mechanism to make adjustments over the term of any new license, it may not be justifiable in all circumstances. In situations where a clear nexus to project operations has not been established, as here, the responsibility for obtaining the requested information would seem to rest more appropriately with the Virginia DGIF. Therefore, this order does not require Virginia DGIF's recommendation. Condition D.7 of the certification, however, states that the licensee may be required to evaluate operational effects, or to cooperate with any cause-effect evaluation conducted by other interested parties, and to provide mitigation to minimize any identified project-related effects should independent research conclude that hellbender were being adversely affected during the term of any license.

### 3. Reservoir Drawdown

137. In previous years, Appalachian Power voluntarily provided an annual reservoir drawdown that allowed shoreline landowners the opportunity to easily conduct shoreline maintenance and clean-up activities. This annual drawdown, however, resulted in a rapid, vertical shift in mussel habitat that previously had been stable, leading to substantial stranding of mussels and ultimately in mortality from desiccation, predation, and freezing.<sup>78</sup> In order to protect state-listed mussel species, however, Appalachian Power's license application did not include a proposal to continue this annual drawdown. In response, several shoreline landowners filed recommendations requesting Appalachian Power provide a drawdown every 2 to 3 years that would lower the reservoir 4 feet for 2 to 3 weeks in early to mid October in order to allow residents to clean up and stabilize the shoreline. FOCL, which provided a petition signed by 961 individuals requesting continuance of the existing drawdown, recommended exploration of other alternatives to the annual reservoir drawdown including: (1) less frequent drawdowns, (2) less than a 5-foot drawdown, and (3) a drawdown of the reservoir in warmer weather to avoid freezing stranded mussels. Skyline SWCD recommended a drawdown every 2 years for a 2-week timeframe between September 15 and October 15 to prevent freezing weather from damaging mussels that live in the drawdown zone. In the final EA, staff found that although these recommendations would shift the timing of the drawdown to a time when mussels would not be subject to freezing, exposing mussel beds to dry conditions over 2 weeks would result in significant mortality.<sup>79</sup>

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in the New River and the tributaries of the Upper Tennessee River.

<sup>78</sup> See Appalachian Power's *Final License Application*, Exhibit E, at 4-88.

<sup>79</sup> See final EA at 224.

138. In order to address issues relating to the elimination of the annual drawdown for shoreline maintenance, this order requires, as recommended in the final EA, that Appalachian Power develop and implement a reservoir drawdown plan. As Appalachian Power expects reservoir drawdowns to occur rarely, a reservoir drawdown plan would provide residents with advance notice when Appalachian Power plans to institute a drawdown. The reservoir drawdown plan would include the commencement date, drawdown rate, drawdown term, and limit of the drawdown and would provide shoreline residents the opportunity to perform shoreline maintenance while Appalachian Power conducts necessary maintenance.

139. Article 405 requires Appalachian Power to file a reservoir drawdown plan for the project that includes the measures described above.

#### **4. Lake Level and Flow Monitoring Contingency Plan**

140. Condition E.9 of the water quality certification requires Appalachian Power to submit to Virginia DEQ a lake level and flow monitoring contingency plan in the case of equipment and/or gauge failure. Condition E.9 states that this plan shall include all protocols that will be implemented to ensure compliance with the water quality certification. This condition, however, does not require that the plan be filed with the Commission. As the Water Management Plan also did not include a provision for insuring protocols are in place in case of a gauge failure, article 401 of this order requires that the plan required by condition E.9 of the water quality certification also be submitted to the Commission.

#### **5. Technical Review Committees**

141. Several of Appalachian Power's management plans required by this license (*e.g.*, Water Quality, Habitat Management, Aquatic Vegetation, Recreation, Debris, and Aids to Navigation) provide for the formation of technical review committees. These plans stipulate that the committees "will include," "will be established with," or "will be made up of" representatives of entities other than the licensee. As explained in the plans, the committees will play an important consultation role in the plans' implementation and review during the license term. While the Commission cannot require other entities to participate in those committees, the entities named within the management plans and this license order are those with whom the licensee must attempt to consult with respect to the specific plans.

### **ADMINISTRATIVE PROVISIONS**

#### **A. Annual Charges**

142. The Commission collects annual charges from licensees for administration of the FPA. Article 201 provides for the collection of funds for this purpose.

### **B. Exhibit F and G Drawings**

143. The Commission requires licensees to file sets of approved project drawings on microfilm and in electronic file format. Article 202 requires the filing of these Exhibit F drawings and article 203 requires the filing of revised Exhibit G drawings that show the entire New River Access boat launch enclosed within the project boundary.

### **C. Amortization Reserve**

144. Pursuant to section 10(d) of the FPA, 16 U.S.C. § 803(d), the Commission requires that, for new major licenses, non-municipal licensees must set up and maintain an amortization reserve account upon license issuance. Article 204 requires the establishment of the account.

### **D. Headwater Benefits**

145. Some projects directly benefit from headwater improvements that were constructed by other licensees, by the United States, or by permittees. Article 205 requires the licensee to reimburse such entities for these benefits if they were not previously assessed and reimbursed.

### **E. Use and Occupancy**

146. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project land would be unduly burdensome. Therefore, Article 416 allows the licensee to grant permission, without prior Commission approval, for the use and occupancy of project lands for such minor activities as landscape planting. In accordance with the provisions of the Shoreline Management Plan, Article 414 allows the licensee to grant permission for piers, landings, boat docks, marinas, or similar structures beyond the usual 10 watercraft limit typically included in the article.

### **F. Review of Final Plans and Specifications**

147. Article 301 requires the licensee to provide the Commission's Division of Dam Safety and Inspections, Atlanta Regional Office, for its approval, final contract drawings and specifications, together with a supporting design report consistent with the Commission's engineering guidelines; a quality control and inspection program, temporary construction emergency action plan, and soil erosion and sediment control plan.

148. Where new construction or modifications to the project are involved, the Commission requires the licensees to file revised drawings of project features as-built. Article 302 provides for the filing of these drawings.

### **G. Commission Approval of Management Plans, Notification, and Filing of Amendments**

149. In Appendix A there are certain water quality certification conditions that either do not require the licensee to submit management plans to the Commission or do not provide for notification to the Commission of temporary modifications to project operations or project works. Therefore, Article 401 requires the licensee to submit the management plans to the Commission for approval, notify the Commission of planned and unplanned deviations from license requirements, and file amendment applications, as appropriate.

### **STATE AND FEDERAL COMPREHENSIVE PLANS**

150. Section 10(a)(2)(A) of the FPA<sup>80</sup> requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.<sup>81</sup> Under section 10(a)(2)(A), staff identified and reviewed six comprehensive plans that are relevant to this project.<sup>82</sup> No conflicts were found.

### **APPLICANT'S PLANS AND CAPABILITIES**

151. In accordance with sections 10(a)(2)(C) and 15(a) of the FPA,<sup>83</sup> Commission staff evaluated Appalachian Power's record as a licensee for these areas: (1) conservation efforts; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission services; (7) cost-effectiveness of plans; and (8) actions affecting the public. This order accepts staff's findings in each of the following areas.

#### **A. Conservation Efforts**

152. Section 10(a)(2)(C) of the FPA requires the Commission to consider the extent of electricity consumption efficiency improvement programs in the case of license applicants primarily engaged in the generation or sale of electric power, like Appalachian

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<sup>80</sup> 16 U.S.C. § 803(a)(2)(A) (2006).

<sup>81</sup> Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2010).

<sup>82</sup> The list of applicable plans can be found in section 5.4, page 247 of the final EA for the project.

<sup>83</sup> 16 U.S.C. §§ 803(a)(2)(C) and 808(a) (2006).

Power. Appalachian Power has programs to promote cost-effective conservation and load management for residential, commercial, industrial, and agricultural customers. Through these programs, Appalachian Power is making satisfactory efforts to conserve electricity and reduce peak hour demands, and has made a satisfactory good faith effort to comply with section 10(a)(2)(C) of the FPA.

### **B. Compliance History and Ability to Comply with New License**

153. Based on a review of Appalachian Power's compliance with the terms and conditions of the existing license, staff found that Appalachian Power's overall record of making timely filings and compliance with its license is satisfactory. Therefore, staff concluded that Appalachian Power can satisfy the conditions of a new license.

### **C. Safe Management, Operation, and Maintenance of the Project**

154. Staff reviewed Appalachian Power's management, operation, and maintenance of the Claytor Project pursuant to the requirements of 18 C.F.R. Part 12 and the Commission's Engineering Guidelines. Staff concluded that the dam and other project works are safe, and that there is no reason to believe that Appalachian Power cannot continue to safely manage, operate, and maintain these facilities under a new license.

### **D. Ability to Provide Efficient and Reliable Electric Service**

155. Staff reviewed Appalachian Power's plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. Staff's review indicated that Appalachian Power: (a) regularly inspects the project turbine generator units to ensure they continue to perform in an optimal manner; (b) schedules maintenance to minimize effects on energy production; and (c) since the project has been in operation, has undertaken a number of initiatives to ensure that the project is able to operate reliably into the future. Staff concluded that Appalachian Power is capable of operating the project to provide efficient and reliable electric service in the future.

### **E. Need for Power**

156. The Claytor Project is an integral part of AEP's system of generation, which includes nearly 38,000 MW of generating capacity.<sup>84</sup> Coal-fired plants account for 73 percent of the capacity, while natural gas represents 16 percent and nuclear

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<sup>84</sup> Smith Mountain Hydroelectric Project, FERC Project No. 2210 Final Environmental Impact Statement, issued August 2009, p. 3.

eight percent.<sup>85</sup> The remaining 3 percent comes from wind, hydroelectric, pumped storage, and other sources. AEP owns and operates 17 hydroelectric facilities (878 MW) located on six river systems in five states. There are 17 generating facilities (8,018.1 MW) within Appalachian Power's service area, of which Appalachian Power owns 6,415 MW. Hydroelectric and pumped storage projects represent 823.1 MW, with the Claytor Project being 75 MW.<sup>86</sup>

157. To assess the need for power, staff looked at the needs in the operating region in which the project is located, which is the Reliability First Corporation (RFC) region of the North American Electric Reliability Council (NERC). NERC annually forecasts electrical supply and demand in the nation and the region for a 10-year period. NERC's most recent report on annual supply and demand projections indicates that total summer demand is projected to grow at an annual average compound rate of 1.9 percent over the 10-year planning period from 2009 through 2018. Independent power producers such as Appalachian Power are projected to supply about 4,000 MWh of this demand. Staff concluded that the project's power, low cost, and contribution to the region's diversified generation mix will help meet a need for power in the region.

#### **F. Transmission Services**

158. The Claytor Project has an 827-foot-long transmission line that connects the transformers, behind the powerhouse, on the dam, to two AEP distribution switchyards. Appalachian Power proposed no changes that would affect its transmission facilities or the capability of the project to transmit electric power to the substations for delivery to local communities or into the regional distribution system.

#### **G. Cost Effectiveness of Plans**

159. This license requires certain measures and the implementation of a variety of management plans to address sedimentation, erosion, and water management, and to enhance fish and wildlife, recreation, and cultural resources at the project. Based on Appalachian Power's record as an existing licensee, staff concluded that these plans are likely to be carried out in a cost-effective manner.

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<sup>85</sup> See <http://www.aep.com/about/powerplants/> (accessed March 12, 2009).

<sup>86</sup> See <http://appalachianpower.com/about/serviceTerritory/docs/AppalachianPowerFactSheet2007.pdf> (accessed March 12, 2009.)

## H. Actions Affecting the Public

160. Appalachian Power provided extensive opportunity for public involvement in the development of its application for a new license for the Claytor Project. During the previous license period, Appalachian Power: (a) provided employment opportunities and facilities to enhance the public use of project lands and facilities; and (b) operated the project with consideration for the protection of resources along the New River. Appalachian Power uses the project to help meet local power needs.

## PROJECT ECONOMICS

161. In determining whether to issue a new license for an existing hydroelectric project, the Commission considers a number of public interest factors, including the economic benefits of project power. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corp.*,<sup>87</sup> the Commission uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project, and of reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

162. In applying this analysis to the Claytor Project, staff considered three licensing options: the no-action alternative, Appalachian Power's proposal, and the project as licensed herein, with the mandatory conditions and staff measures.<sup>88</sup> As proposed by Appalachian Power, the annual cost of operating the Claytor Project would be \$3,658,000, or \$19.67/megawatt-hour (MWh). The proposed project would generate an estimated average of 185,968 MWh of energy annually. When we multiply our estimate of average generation by the alternative power cost of \$56.37/MWh,<sup>89</sup> we get a total value of the project's power of \$10,482,000 in 2011 dollars. To determine whether the proposed project is currently economically beneficial, we subtract the project's costs from the value of the project's power. Therefore, in the first year of operation, the

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<sup>87</sup> 72 FERC ¶ 61,027 (1995).

<sup>88</sup> Details of staff's economic analysis for the project, as licensed herein and for various alternatives, are included in the final EA.

<sup>89</sup> The alternative power cost is based on information in Exhibit D of the license application and information from Appalachian Power in a letter filed with the Commission on September 10, 2010.

project would cost \$6,825,000, or \$36.70/MWh, less than the likely alternative cost of power.

163. For the no-action alternative, the annual cost of operating the project would be about \$3,175,000, or \$17.22/MWh. Based on the same alternative power cost and estimated average annual generation of 184.384 MWh, the project power would cost \$7,575,000, or \$41.08/MWh, less than the likely alternative cost of power.

164. As licensed herein, with the mandatory conditions and staff measures, the annual cost of operating the Claytor Project would be \$3,667,000, or \$19.76/MWh. Based on the same alternative power cost and estimated average annual generation of 185.551 MWh, project power would cost \$6,800,000, or \$36.65/MWh, less than the likely alternative cost of power.

165. In considering public interest factors, the Commission takes into account that hydroelectric projects offer unique operational benefits to the electric utility system (ancillary service benefits). These benefits include their ability to help maintain the stability of a power system, such as by quickly adjusting power output to respond to rapid changes in system load; and to respond rapidly to a major utility system or regional blackout by providing a source of power to help restart fossil-fuel based generating stations and put them back on line.

## **COMPREHENSIVE DEVELOPMENT**

166. Sections 4(e) and 10(a)(1) of the FPA<sup>90</sup> require the Commission to give equal consideration to power development purposes and to the purposes of energy conservation; the protection, mitigation of damage to, and enhancement of fish and wildlife; the protection of recreational opportunities; and the preservation of other aspects of environmental quality. Accordingly, any license issued shall, in the Commission's judgment, be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

167. The final EA for the project contains background information, analysis of effects, and support for related license articles. This order concludes, based on the record of this proceeding, including the final EA and the comments thereon, that licensing the Claytor Project as described in this order would not constitute a major federal action significantly affecting the quality of the human environment. The project will be safe if operated and maintained in accordance with the requirements of this license.

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<sup>90</sup> 16 U.S.C. §§ 797(e) and 803(a)(1) (2006).

168. Based on independent review and evaluation of the Claytor Project, recommendations from the resource agencies and other stakeholders, water quality certification conditions, and the no-action alternative, as documented in the final EA, the proposed Claytor Project has been selected, with the certification conditions and the staff-recommended measures, and is found to be best adapted to a comprehensive plan for improving or developing the New River.

169. This alternative has been selected because: (1) issuance of a new license will serve to maintain a beneficial, dependable, and inexpensive source of electric energy; (2) the required environmental measures will protect and enhance fish and wildlife resources, water quality, recreational resources, and cultural resources; and (3) the 75-MW of electric capacity comes from a renewable resource that does not contribute to atmospheric pollution.

### **LICENSE TERM**

170. Section 15(e) of the FPA,<sup>91</sup> provides that any new license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years or more than 50 years. The Commission's general policy is to establish 30-year terms for projects with little or no redevelopment, new construction, new capacity, or environmental mitigation and enhancement measures; 40-year terms for projects with a moderate amount of such activities; and 50-year terms for projects with extensive measures.<sup>92</sup> This license authorizes no new capacity, and only a minor amount of new environmental enhancement measures. Consequently, a 30-year license for the Claytor Project is appropriate.

#### The Director Orders:

(A) This license is issued to Appalachian Power Company (licensee), for a period of 30 years, effective the first day of the month in which the license is issued, to operate and maintain the Claytor Hydroelectric Project. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

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<sup>91</sup> 16 U.S.C. § 808(e) (2006).

<sup>92</sup> See *Consumers Power Co.*, 68 FERC ¶ 61,077 at 61,383-84 (1994).

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in these lands, described in the project description and the project boundary discussion of this order.

(2) Project works consisting of: (1) a 1,142-foot-long, 137-foot-high concrete gravity dam; (2) a 4,363-acre reservoir with a storage capacity of 225,000 acre-feet at normal pool elevation 1,846.0 feet National Geodetic Vertical Datum; (3) four 16-foot-diameter penstocks; (4) a powerhouse integral with the dam containing four vertical Francis-type turbines; (5) four Westinghouse AC generators with a combined capacity of 75 megawatts; (6) two transformer banks; and (7) an 827-foot-long, 138-kilovolt transmission line.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A: Pages 1 through 11 of Exhibit A of the license application, filed on June 29, 2009.

Exhibit F: The following Exhibit F drawings filed on June 29, 2009:

<u>Exhibit F Drawings</u>	<u>FERC No. 739-</u>	<u>Description</u>
1	1001	General Plan of Dam Site
2	1002	Downstream Elevation of Dam and Power Station
3	1003	Plan and Sections of Dam and Power Station
4	1004	Plan and Sections of Dam and Power Station

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The Exhibits A and F, as described above, are approved and made part of the license. The Exhibit G drawings filed as part of the application for license do not conform to Commission regulations and are not approved.

(D) This license incorporates, and is subject to, the conditions of the water quality certification issued by the Virginia Department of Environmental Quality pursuant to section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1)(2006), as those conditions are set forth in Appendix A to this order.

(E) This license is also subject to the articles set forth in Form L-3 (Oct. 1975), entitled “Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States” (*See* 54 F.P.C. 1799 et seq.), as reproduced at the end of this order, and the following additional articles:

Article 201. *Administrative Annual Charges.* The licensee shall pay the United States annual charges, effective the first day of the month in which the license is issued, and as determined in accordance with provisions of the Commission’s regulations in effect from time to time, for the purposes of reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 75,000 kilowatts.

Article 202. *Exhibit F Drawings.* Within 45 days of the date of issuance of the license, the licensee shall file the approved exhibit drawings in aperture card and electronic file formats.

(a) Three sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35 mm microfilm. All microfilm shall be mounted on type D (3-1/4” X 7-3/8”) aperture cards. Prior to microfilming, the FERC Project-Drawing Number (i.e., P-739-#### through P-739-####) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., F-1, F-2, etc.), Drawing Title, and date of this license shall be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission’s Division of Dam Safety and Inspections, Atlanta Regional Office.

(b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission’s Division of Dam Safety and Inspections, Atlanta Regional Office. Exhibit F drawings must be identified as Critical Energy Infrastructure Information (CEII) material under 18 C.F.R. §388.113(c)(2011). Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file extension in the following format [P-739-####, F-1, Project Boundary, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY – black & white raster file  
FILE TYPE – Tagged Image File Format (TIFF), CCITT Group 4  
RESOLUTION – 300 dpi desired (200 dpi min)  
DRAWING SIZE FORMAT – 24” X 36” (min), 28” X 40” (max)  
FILE SIZE – less than 1 MB desired

Article 203. *Exhibit G Drawings.* Within 90 days of the issuance date of the license, the licensee shall file, for Commission approval, revised Exhibit G drawings enclosing within the project boundary all principal project works necessary for operation and maintenance of the project, including the boat launch at the New River Access. The Exhibit G drawings must comply with sections 4.39 and 4.41 of the Commission’s regulations.

Article 204. *Amortization Reserve.* Pursuant to section 10(d) of the Federal Power Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly included in the licensee’s long-term debt and proprietary capital accounts as listed in the Commission’s Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department’s 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 205. *Headwater Benefits.* If the licensee’s project was directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater

improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license. The benefits will be assessed in accordance with Part 11, Subpart B, of the Commission’s regulations.

Article 301. Contract Plans and Specifications. At least 60 days prior to the start of any construction, the licensee shall submit one copy of its plans and specifications and supporting design document to the Division of Dam Safety and Inspections (D2SI) – Atlanta Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal to the Division of Dam Safety and Inspections (D2SI) – Atlanta Regional Engineer must also include as part of preconstruction requirements: a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan. The licensee may not begin construction until the Division of Dam Safety and Inspections (D2SI) – Atlanta Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

Article 302. As-Built Drawings. Within 90 days of completion of construction of the facilities authorized by this license, the licensee shall file for Commission approval, revised Exhibits A, F, and G, as applicable, to describe and show those project facilities as built. A courtesy copy shall be filed with the Commission’s Division of Dam Safety and Inspections (D2SI)-Atlanta Regional Engineer, the Director, D2SI, and the Director, Division of Hydropower Administration and Compliance.

Article 401. Commission Approval, Notification, and Filing of Amendments.

(a) Requirement to File Plans for Commission Approval

Certain conditions of this license found in the Virginia Department of Environmental Quality (Virginia DEQ) Water Quality Certification (Certification, Appendix A) require the licensee to prepare plans for approval by the Virginia DEQ for submittal to the Commission, but do not require Commission approval. Each such plan also shall be submitted to the Commission for approval. These plans are listed below.

Virginia DEQ Certification Condition No. (Appendix A of this license order)	Plan Name	Date Due to Commission
E.9	Lake Level and Flow Monitoring Contingency Plan	Within 90 days of license issuance
E.4	Revised Water Quality Monitoring Plan	Within 150 days of license issuance

Virginia DEQ Certification Condition No. (Appendix A of this license order)	Plan Name	Date Due to Commission
E.5	Revised Freshwater Mussel Adaptive Monitoring Plan	Within 150 days of license issuance

The licensee shall include with each plan filed with the Commission documentation that the plan has been approved by Virginia DEQ. The Commission reserves the right to make changes to any plan submitted. Upon Commission approval, the plan becomes a requirement of the license, and the licensee shall implement the plan or changes in project operations or facilities, including any changes required by the Commission.

(b) Requirement to File Reports

Certain conditions of this license found in the Virginia DEQ Certification require the licensee to file reports with other entities. These reports document compliance with requirements of this license and may have a bearing on future actions. Each such report shall also be submitted to the Commission. These reports are listed in the following table:

Virginia DEQ Certification Condition No. (Appendix A of this license order)	Description	Due Date
E.11	Results of plan’s studies, demonstration projects, research, modeling, and stakeholder coordination efforts	No later than 1 year after completion of activity
E.12	Annual Monitoring Report	By January 31 <sup>st</sup> of the year following data collection

The licensee shall submit to the Commission documentation of any consultation, and copies of any comments and recommendations made by any consulted entity in connection with each report. The Commission reserves the right to require changes to project operations or facilities based on the information contained in the report and any other available information

(c) Requirement to Notify the Commission of Planned and Unplanned Deviations from License Requirements

(1) Condition D.9 of Part I of the Certification would allow the licensee to temporarily suspend the flow requirements of Condition D.8 of the Certification upon mutual agreement between the licensee and the Virginia DEQ, after consultation with the Virginia Department of Game and Inland Fisheries (Virginia DGIF), the Virginia Department of Conservation and Recreation (Virginia DCR), and appropriate public input, as determined through coordination with Virginia DEQ. The Commission shall be notified prior to suspending the flow requirements of the license, if possible, or in the event of an emergency, as soon as possible, but no later than 10 days after each such incident.

(2) Condition E.3 of Part I of the Certification would require the licensee to coordinate with the Virginia DEQ, Virginia DGIF, the Virginia DCR, and other interested stakeholders to develop flow release protocols during periods when inflow to the project falls below 335 cubic feet per second as measured at the U.S. Geologic Survey gage on the New River at Allisonia (No. 03168000). The Commission shall be notified prior to modifying the flow requirements of the license, if possible, or in the event of an emergency, as soon as possible, but no later than 10 days after each such incident.

(d) Requirement to File Amendment Applications

Condition E.7 of Part 1 of the Certification contemplates modifications to project discharge works. Modifications to project works may not be implemented without prior Commission authorization granted after the filing of an application to amend the license.

Article 402. Erosion Monitoring. The Erosion Monitoring Plan is approved and made part of the license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Erosion Monitoring Plan, filed June 29, 2009, and shall include the following modifications:

- (a) add the Skyline Soil and Water Conservation District as a consulted party on the Erosion Technical Review Committee; and
- (b) include quantitative method(s) (*i.e.*, bank pins) for monitoring erosion in the New River downstream from Claytor dam.

Article 403. Sedimentation Monitoring. The Sedimentation Monitoring Plan is approved and made part of the license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the

Sedimentation Monitoring Plan, filed June 29, 2009, and shall include the following modifications:

- (a) add the Skyline Soil and Water Conservation District as a consulted party on the Sedimentation Technical Review Committee;
- (b) include monitoring areas of sediment deposition in the New River downstream from Claytor dam; and
- (c) define criteria for determining the need to dredge and provide a description of the types of actions that would be implemented to manage sediment (*e.g.*, if it is restricting recreational access) and what conditions would trigger such actions.

Article 404. Water Management. The Water Management Plan is approved and made part of the license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Water Management Plan, filed June 29, 2009, consistent with the provisions contained within Part I, *Special Conditions*, sections D and E of the attached section 401 Virginia Water Protection Permit, issued February 14, 2011 (attached), and shall include the following modifications:

- (a) provisions for a minimum of two annual whitewater flow releases, in addition to the May squirt boat competition, to be scheduled during each annual review; and
- (b) provisions for providing, via a publically-accessible website: the dates and timing of planned whitewater flow releases; a clear description of the project's flow regime, as required by this license and the Virginia Department of Environmental Quality's section 401 Water Quality Certification; and tools to assist the public in predicting flow travel time from Claytor dam to reaches between the project and Glen Lyn.

Article 405. Reservoir Drawdown. At least 3 months prior to implementing a non-emergency reservoir drawdown, the licensee shall file with the Commission, for approval, a reservoir drawdown plan. The purpose of the drawdown plan is to minimize the impact of any project maintenance activity requiring a reservoir drawdown on aquatic resources in the project reservoir and downstream of the project and to allow shoreline property owners sufficient time to plan shoreline maintenance activities.

The licensee shall prepare the plan after consulting with the U.S. Fish and Wildlife Service, Virginia Department of Game and Inland Fisheries, Virginia Department of Conservation and Recreation, Virginia Department of Environmental Quality, Pulaski County, New River Valley Planning District Committee, and the Friends of Claytor Lake.

The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and

provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons based on project-specific information.

The licensee shall notify the public of the reservoir drawdown and shall notify property owners along the shoreline by mail of the drawdown 45 days prior to implementing the drawdown to allow property owners sufficient time to plan shoreline maintenance activities. The notification shall include rate (feet per day), limit in feet, and term of the drawdown.

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

Article 406. Water Quality Monitoring. The Water Quality Monitoring Plan is approved and made part of this license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Water Quality Monitoring Plan, filed June 29, 2009, and shall include the following modifications:

- (a) a provision to include an evaluation (demonstration study) of the effects of any proposed mitigation measure for low dissolved oxygen (DO) concentrations in the tailrace on reservoir fisheries and water quality in section 3.0 (*Mitigation Measures for Low Dissolved Oxygen on the Tailrace*);
- (b) a provision to provide a period of 1 year to evaluate a new mitigation measure for low DO in the tailrace (effectiveness demonstration study) should any implemented measure fail to raise DO levels to state water quality standards described in section 4.1 of the Water Quality Monitoring Plan;
- (c) a provision to develop alternative mitigation measures to address low DO in the discharge should an applied mitigation measure fail to resolve low tailrace DO, within 120 days of the conclusion of an effectiveness demonstration study, as referenced in (a) and (b) above; and
- (d) a provision to continuously monitor DO of inflow to the project at the Allisonia USGS gauge station (No. 03168000) from April 1 to November 1. Monitoring records for DO shall be maintained by Appalachian Power and summarized in an annual report filed with the Commission.

Article 407. Mussel Monitoring. The Freshwater Mussel Adaptive Management Plan is approved and made part of this license and may not be amended without prior

Commission approval. Upon license issuance, the licensee shall implement the Freshwater Mussel Adaptive Management Plan, filed June 29, 2009, and shall include the following modifications:

- (a) a provision to include hourly temperature and dissolved oxygen measurements at the long-term mussel monitoring sites for a period of 1 year;
- (b) a description of the equipment for monitoring water quality at the long-term mussel monitoring sites, how the equipment will be calibrated, and how the data will be stored; and
- (c) the annual reports shall include at a minimum, the raw data, an analysis summarizing the data, and recommendations for changes to the plan, project operations, or additional mitigation measures, if necessary.

Article 408. Aquatic Vegetation Management. The Aquatic Vegetation Management Plan is approved and made part of this license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Aquatic Vegetation Management Plan, filed June 29, 2009, with the following modification: section 8.1, Issuance of Permit by Appalachian Power to Control Aquatic Vegetation, shall be revised to include a provision that when applying for a treatment permit, each permittee must notify adjacent landowners that treatment is going to occur and when.

Article 409. Habitat Management. The Habitat Management Plan is approved and made part of this license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Habitat Management Plan, filed June 29, 2009.

Article 410. Fringed Mountain Snail Management. The Fringed Mountain Snail Management Plan is approved and made part of this license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Fringed Mountain Snail Management Plan, filed June 29, 2009.

Article 411. Recreation Management. The Recreation Management Plan is approved and made part of this license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Recreation Management Plan, filed June 29, 2009, and shall include the following modifications:

- (a) an updated schedule for providing a boat ramp, fishing pier, and trailer parking area at Appalachian Power's picnic area, which would serve as the upstream portion of any new portage facility;

- (b) a proposed plan, including a schedule and documentation of consultation (including consultation with the New River Valley Planning District Committee), regarding the establishment of a new portage put-in downstream from the dam, a portage trail leading from Appalachian Power's picnic area to this put-in, and the adequacy of the access road to access these sites; and
- (c) a maintenance schedule for all recreation sites (including those managed by the Virginia Department of Game and Inland Fisheries).

Article 412. Debris Management. The Debris Management Plan is approved and made part of this license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Debris Management Plan, filed June 29, 2009.

Article 413. Aids to Navigation. The Aids to Navigation Management Plan is approved and made part of this license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Aids to Navigation Management Plan, filed June 29, 2009, and shall include the following modifications:

- (a) a detailed implementation schedule;
- (b) a description of any height restrictions for sailboats, as well as provisions for marking any height-related hazards on Claytor Lake, subject to Virginia Department of Game and Inland Fisheries and U.S. Coast Guard approval, as appropriate; and
- (c) a stipulation in section 9 that any updates to the Aids to Navigation Management Plan shall be reported to the Commission within 30 days of the technical committee consultations.

Article 414. Shoreline Management. The Shoreline Management Plan is approved and made part of this license and may not be amended without prior Commission approval. Upon license issuance, the licensee shall implement the Shoreline Management Plan, filed June 29, 2009, and shall include the following modifications:

- (a) Paragraph 4 of section 2.5.4, *Low Density - Single Family Residential*, and section 2.5.6, *Steep Slope Protection*, shall be revised as follows: "All structures shall be constructed between the property owner's lot lines as extended into project lands and into the water. If an extended lot line does not effect fair division of the shoreline with an adjoining neighbor then the two property owners can mutually agree in a written document to a revised extended lot line. This agreement or waiver shall accompany all applications for construction particular to these circumstances."

- (b) Paragraph 5 of section 2.5.4, *Low Density - Single Family Residential*, and section 2.5.6, *Steep Slope Protection*, shall be revised as follows: “All structures must maintain a setback of at least 15 feet from the adjoining property owner's lot line extended onto Appalachian's project lands and the water. Appalachian may allow construction between the setback line of 15 feet and the extended lot line if the adjoining property owner(s) grants written permission and, in the opinion of Appalachian, the construction will not affect unfair use of the shoreline. In case of such permission, the agreement or waiver shall be filed with Appalachian. The minimum distance between structures shall be thirty (30) feet, unless such written permission is granted to reduce the setback, in which case the minimum distance between structures shall be twenty (20) feet.”
- (c) Paragraph 12 of section 2.5.4, *Low Density Use - Single Family Residential*, is to be revised as follows: "The total overall size of a property owner's structure and slip areas shall not exceed 1000 square feet. The square footage shall be calculated utilizing the structure, the open slip area and all existing upland improvements within the project boundary but excluding the one walkway from the project boundary to the dock as described in regulation 9 above;"
- (d) Section 3.5, *Shoreline Management Plan Review and Update*, is revised to specify that, at a minimum, the following entities must be consulted during any review and update for the plan: U.S. Army Corps of Engineers, Virginia Department of Health, Virginia Department of Game and Inland Fisheries, Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation, Virginia Department of Historic Resources, Pulaski County, and the Friends of Claytor Lake;
- (e) Within 60 days of license issuance, and after consultation with the stakeholders defined in (d), Appalachian Power shall file an amendment to paragraph 22 of section 2.5.4, *Low Density Use – Single Family Residential* that provides clarification on the manner in which section 2.5.4(22) and any similar sections of the plan are to be implemented; and
- (f) Within 60 days of license issuance, Appalachian Power shall file an amendment to section 3.3, *Variance Process*, that provides, at a minimum, a description of, and explanation for, the criteria and justification that Appalachian Power will use in reviewing a request for a variance. This additional detail should provide guidance to potential applicants on when it is appropriate to apply for a variance and what exceptions might be considered.

The licensee shall file revised shoreline maps when the classifications are modified, or to correct any shoreline classification errors, as they are determined.

Article 415. Programmatic Agreement and Historic Properties Management Plan. The licensee shall implement the “Final Programmatic Agreement Between the Federal Energy Regulatory Commission and the Virginia State Historic Preservation Office for Managing Historic Properties that may be Affected by Issuing a New License to Appalachian Power Company for the Continued Operation of the Claytor Hydroelectric Project in Pulaski County, Virginia (FERC No. 739),” executed on May 2, 2011, and including but not limited to the Historic Properties Management Plan (HPMP) for the project. Pursuant to the requirements of this Programmatic Agreement, the licensee shall implement the June 30, 2010 HPMP that addresses cultural resources, at the Claytor Project and shall include the following revisions:

- (a) consult with the Commission, Virginia State Historic Preservation Office (SHPO), Eastern Band of Cherokee Indians, and the Virginia Council of Indians on how to resolve the adverse effects to the historic components of the eligible archaeological site that is currently experiencing erosion (consider forms of shoreline protection, additional background research, or archaeological data recovery);
- (b) implement procedures for staff training, protection of any unidentified historic properties or discovered human remains, annual reporting, plan amendments, and dispute resolution;
- (c) in section 1.2 of the HPMP (*Purpose*), include Pulaski County and the local historical society in the fifth bullet;
- (d) revise section 4.3 of the HPMP (*Project Effects and Mitigation/Management Measures, Future Effects*) to specify the materials the Virginia SHPO will need for review;
- (e) address the typographical corrections and editorial comments on the HPMP from the Virginia SHPO’s January 13, 2011, letter providing comments on the draft PA and HPMP;
- (f) in Appendix D (*List of Activities that Do Not Require Prior Consultation with the SHPO*), under Powerhouse, remove “or upgrade” from the bullet dealing with in-kind repair of historic windows and doors;
- (g) update section 2.4.2 of the HPMP (*Recommendations for Future Work*) to include a statement on the need for future consultations on contributing and non-contributing elements of the Claytor powerhouse;
- (h) include the following language in section 5.4, *Protection of Discovered Human Remains*:
  - o All reasonable efforts shall be made to avoid disturbing gravesites, including those containing Native American human remains and associated artifacts. To the extent possible, Appalachian Power shall ensure that the general public is excluded from viewing any gravesites and associated artifacts. All consulting parties agree to release no

photographs of any gravesites and/or funerary objects to the press or to the general public.

- If human remains encountered appear to be of Native American origin, whether prehistoric or historic, Appalachian Power shall immediately notify the Virginia State Historic Preservation Officer, the Eastern Band of Cherokee Indians, and the Virginia Council of Indians.
  - If it is agreed that avoidance of the human remains is not prudent and feasible, Appalachian Power shall apply for a permit from the Virginia Department of Historic Resources (DHR) for archaeological removal of human remains. In considering issuance of a permit involving removal of Native American human remains, the Virginia DHR shall consult with other parties, including Appalachian Power, Eastern Band of Cherokee Indians, and the Virginia Council of Indians; and
- (i) in sections 5.6 and 5.7 of the HPMP, remove references to the Advisory Council on Historic Preservation.

In the event the Programmatic Agreement is terminated, the licensee shall continue to implement the provisions of its approved HPMP. The Commission reserves the right to require changes to the HPMP at any time during the term of the license.

Article 416. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies, for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article.

If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, such action includes, as necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and water for which the licensee may grant permission without prior Commission approval are: (1) landscape

plantings; (2) piers, landings, boat docks, or similar structures and facilities, as determined under the Commission-approved Shoreline Management Plan; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement.

To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements.

Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction; (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline.

To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir.

No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas, as determined under the Commission-approved Shoreline Management Plan; (6) recreational development consistent with an approved report on recreational resources of an exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year.

At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article: (1) before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer; (2) before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value; (3) the instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters; and (4) the Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

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

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in the order to be consulted on matters relating to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the FPA, 16 U.S.C. § 8251 (2006), and section 385.713 of the Commission's regulations, 18 C.F.R. § 385.713 (2010). The filing of a request for rehearing does not operate as a stay of the effective date of this license, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Jeff C. Wright  
Director  
Office of Energy Projects

**Form L-3**  
(October, 1975)

**FEDERAL ENERGY REGULATORY COMMISSION  
TERMS AND CONDITIONS OF LICENSE FOR CONSTRUCTED  
MAJOR PROJECT AFFECTING NAVIGABLE  
WATERS OF THE UNITED STATES**

**Article 1.** The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

**Article 2.** No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

**Article 3.** The project area and project works shall be in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

**Article 4.** The project, including its operation and maintenance and any work incidental to additions or alterations authorized by the Commission, whether or not conducted upon lands of the United States, shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish

him such information as he may require concerning the operation and maintenance of the project, and any such alterations thereto, and shall notify him of the date upon which work with respect to any alteration will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall submit to said representative a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of any such alterations to the project. Construction of said alterations or any feature thereof shall not be initiated until the program of inspection for the alterations or any feature thereof has been approved by said representative. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

**Article 5.** The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

**Article 6.** In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a nonpower licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project

property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

**Article 7.** The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

**Article 8.** The Licensee shall install and thereafter maintain gauges and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gauges and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gauges, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gauges, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gauges, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

**Article 9.** The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

**Article 10.** The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission any direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

**Article 11.** Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

**Article 12.** The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned.

**Article 13.** On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

**Article 14.** In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

**Article 15.** The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

**Article 16.** Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

**Article 17.** The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

**Article 18.** So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

**Article 19.** In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

**Article 20.** The Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

**Article 21.** Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality.

**Article 22.** Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities.

**Article 23.** The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project works shall at all times be controlled by such reasonable rules and regulations in

the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army.

**Article 24.** The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States.

**Article 25.** The Licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating.

**Article 26.** If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

**Article 27.** The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

**Article 28.** The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

**APPENDIX A**  
**VIRGINIA WATER PROTECTION PERMIT**  
**ISSUED PURSUANT TO THE STATE WATER CONTROL LAW**  
**AND SECTION 401 OF THE CLEAN WATER ACT**

VWP Individual Permit Issuance Number 09-0892

Effective Date: [Date that Federal Energy Regulatory License is effective for the Claytor  
Hydroelectric Project, FERC Project P-739]

Expiration Date: [15 years after the effective date of this permit]

**Part I Special Conditions**

**A. *Authorized Activities***

This permit authorizes the diversion of surface water from the New River and Claytor Lake in accordance with all permit conditions contained herein, and specifically detailed in Part I.D for the purposes of hydroelectric power generation at the Appalachian Power Company's Claytor Hydroelectric Project (hereafter "project"). The authorization is based on information contained in the application materials dated June 26, 2009, received by the Virginia Department of Environmental Quality (DEQ) on June 29, 2009, and deemed complete by DEQ on September 21, 2009; on additional correspondence from the applicant dated August 20, 2009, January 8, 2010, and April 15, 2010; and on coordination held from 2008 through 2010 as part of the permittee's application for a hydropower license from the Federal Energy Regulatory Commission (FERC).

**B. *Permit Term***

This permit is valid for 15 years from the effective date of the issuance. A new permit may be necessary for the continuance of the authorized activities, including water withdrawals, or any permit requirement that has not been completed. At least **120 calendar** days prior to the expiration date of this permit, the permittee shall notify DEQ in writing of his or her intent to continue one or more of the authorized activities. A new permit application shall be required by DEQ at that time. DEQ, acting on behalf of the State Water Control Board (board), may issue a new permit or may issue a new permit with new or modified conditions. Any consideration given to issuance of a new permit shall be, at a minimum, contingent upon the completion of various studies and analyses required by this permit within its term and the submittal of the results of such studies and analyses to DEQ. The board may also deny the issuance of a permit at that time.

DEQ, on behalf of the board, may reopen and modify this permit if after issuance the project operations are determined to have adverse impacts on fish and wildlife resources or to water quality. If applicable, any necessary major modifications to the permit shall include similar public participation procedures as those implemented during the issuance of the permit. Modifications shall not include extension of the permit term beyond 15 years.

**C. *Standard Project Conditions***

1. The activities authorized by this permit shall be executed in such a manner that any impacts to stream beneficial uses are minimized. As defined in §62.1-10(b) of the Code, "beneficial use" means both instream and offstream uses. Instream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. Offstream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural, electric power generation, commercial, and industrial uses. Public water supply uses for human consumption shall be considered the highest priority.
2. No activity shall substantially disrupt the movement of aquatic life indigenous to the water body, including those species that normally migrate through the area, unless the primary purpose of the activity is to impound water.
3. Flows downstream of the project area shall be maintained to protect all uses.
4. Measures shall be employed at all times to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters.
5. Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities.

**D. *Instream Flow and Lake Level Conditions***

1. Lake levels and stream flows shall be measured in accordance with Part I.E of these permit conditions.
2. The facility shall operate in levelized flow mode from April 1<sup>st</sup> through November 30<sup>th</sup>. Levelized flow is defined as maintaining Claytor Lake elevations between 1845 feet National Geodetic Vertical Datum (NGVD) and 1846 feet NGVD. Operating under this mode includes bringing a unit

or units into operation within 15 minutes (ramp up) and taking a unit or units out of operation within 30 minutes (ramp down), and may also include a "blackstart," where units are brought into operation within ten minutes when a loss of generating capacity or an outage of a key transmission facility occurs. Operating under this mode may also include the use of autocycling, where a generating unit operates for a portion of each hour to maintain required instream flows when inflow to the project is less than one unit flow. The rate of one unit flow varies between 2,000 cubic feet per second (cfs) and 2,500 cfs, depending on unit efficiency.

3. The facility shall be authorized to operate in peaking mode from December 1<sup>st</sup> through March 31<sup>st</sup>. Peaking is defined as maintaining Claytor Lake elevations between 1844 feet National Geodetic Vertical Datum (NGVD) and 1846 feet NGVD. Operating under this mode includes bringing a unit or units into operation within 15 minutes (ramp up) and taking a unit or units out of operation within 30 minutes (ramp down), and may also include a "blackstart," where units are brought into operation within ten minutes when a loss of generating capacity or an outage of a key transmission facility occurs.
4. During times of higher than normal inflows into the project, the permittee shall be authorized to allow lake levels to rise above the elevations that define the operational modes in Part I.D.2 and I.D.3, provided that the applicable operational mode elevation is restored as soon as possible after the high inflow event.
5. During times where inflows are higher than the plant's capacity, or during times of emergency drawdowns for project maintenance purposes, the permittee shall be authorized to reduce the Claytor Lake elevation to 1841 feet NGVD to provide additional storage capacity and lessen impacts on downstream habitat. The permittee shall notify DEQ, the Virginia Department of Game and Inland Fisheries (DGIF), and interested stakeholders in accordance with the Water Management Plan approved by the Federal Energy Regulatory Commission (FERC).
6. Reservoir drawdowns may occur in accordance with the Final Water Management Plan approved by the Federal Energy Regulatory Commission for the Claytor Hydroelectric Project (FERC No. P-739).
7. Should independent research during the course of the permit term conclude that the individuals, populations, or habitat of the Eastern Hellbender salamander (*Cryptobranchus alleganiensis*), as documented in the New

River or its tributaries, is being adversely affected for any reason; or should the legal status of the species changes to threatened or endangered during the permit term, as determined under the United States or Virginia Endangered Species Acts, the permittee may be required to evaluate potential operational effects, or to cooperate with any cause-effect evaluation conducted by other interested parties, through coordination with an adaptive management committee or workgroup, including but not limited to the Virginia Department of Environmental Quality, the Virginia Department of Game and Inland Fisheries, and the United States Fish and Wildlife Service. The permittee may be required to provide mitigation to minimize any identified project-related impacts to fish and wildlife habitat.

8. The permittee shall ensure that minimum instream flows (cubic feet per second), as detailed in Table 1, are released from the Claytor dam to the downstream New River. Other special recreational releases may be considered following a review by one or more of the advisory groups stated in Part I.E of this permit.

**Table 1: Minimum Instream Flow (MIF) Requirements and Options**

Month	Required Average Hourly MIF	Optional Authorized Modification to MIF
April	750 cfs, or inflow, whichever is less	
May	750 cfs, or inflow, whichever is less	Squirt Boat Competition: recreational flows may be released upon sufficient inflow, provided that reservoir elevations are maintained between 1845 feet and 1846 feet NGVD.
June	750 cfs, or inflow, whichever is less	
July	750 cfs, or inflow, whichever is less	
August	750 cfs, or inflow, whichever is less	When inflow rates average between 800 and 1,000 cfs during Monday through Friday, additional weekend releases may occur, provided that reservoir elevations are maintained between 1845 feet and

		1846 feet NGVD.
September	750 cfs, or inflow, whichever is less	When inflow rates average between 800 and 1,000 cfs during Monday through Friday, additional weekend releases may occur, provided that reservoir elevations are maintained between 1845 feet and 1846 feet NGVD.
October	750 cfs, or inflow, whichever is less	When inflow rates average between 800 and 1,000 cfs during Monday through Friday, additional weekend releases may occur, provided that reservoir elevations are maintained between 1845 feet and 1846 feet NGVD.
November	750 cfs , or inflow, whichever is less	
December	1,000 cfs, or inflow, whichever is less	
January	1,000 cfs, or inflow, whichever is less	
February	1,200 cfs, or inflow, whichever is less	
March	1,200 cfs, or inflow, whichever is less	

9. Variances to flows and lake elevations required by this permit may only be granted upon mutual agreement between the permittee and the Virginia Department of Environmental Quality (DEQ), in consultation with the Virginia Department of Game and Inland Fisheries (DGIF) and the Virginia Department of Conservation and Recreation (DCR), following appropriate public input as determined through coordination with DEQ.

***E. Monitoring, Notification, and Reporting*****Monitoring:**

1. Elevations in Claytor Lake shall be measured in the forebay (reservoir) and tailrace (below dam) using water level transducers, staff gauges located upstream and downstream that are calibrated with the transducers, and cameras located at that dam. Elevations shall be monitored at the American Electric Power System Control Center in Columbus, Ohio.
2. Releases of instream flows (discharges) from Claytor dam shall be based on the discharge curves developed for the existing generating units, as submitted to the board in the permittee's application. The permittee or its authorized agent(s) shall monitor discharges and adjust unit operations as needed to meet the required flows in Table 1 of this permit.
3. Flows into the project boundary (inflow) shall be determined through monitoring of the USGS gauge New River at Allisonia (No. 03168000) and at the USGS gauge New River near Galax (No.03164000) at the American Electric Power System Control Center in Columbus, Ohio. When using the gauge at Galax to approximate inflow to the project, the flow at Galax shall be multiplied by the permittee-calculated, drainage area ratio factor of 1.75. When using the gauge at Allisonia to approximate inflow to the project, the flow at Allisonia shall be multiplied by the permittee-calculated, drainage area ratio factor of 1.07. Should inflow to the project fall below 335 cubic feet per second, the lowest instantaneous flow recorded since 1930 at Allisonia, the permittee shall coordinate with the Department of Environmental Quality, the Department of Games and Inland Fisheries, the Department of Conservation and Recreation, and other interested stakeholders to develop flow release protocols during these periods.
4. The permittee shall implement the June 2009 Water Quality Monitoring Plan, as approved by the Federal Energy Regulatory Commission (FERC), except that DEQ shall require the following revisions:
  - a. A minimum of five (5) dissolved oxygen and temperature monitoring locations shall be identified between the Claytor dam and the Route 11 bridge, located downstream of the project. The locations shall be approved by the Water Quality / Water Management Technical Review Committee (Technical Review Committee) provided for in the Water Quality Monitoring Plan. Monitoring equipment shall be deployed at each identified monitoring location.

- b. The study period shall be extended if a low flow event does not occur within the initial five-year period, or if depressed dissolved oxygen levels continue during the initial five-year period. The appropriate period for extending the study, and any proposed changes to the study methods, shall be determined in consultation with the Water Quality / Water Management Technical Review Committee (Technical Review Committee), as detailed in the Water Quality Monitoring Plan.
    - c. The permittee shall provide alternative mitigation should the results of the study conclude that the actions taken to date are not effective. Such alternative mitigation shall be developed in consultation with the Water Quality / Water Management Technical Review Committee (Technical Review Committee) within 120 days of concluding the study, and such alternative mitigation shall be approved by DEQ.
- 5. The permittee shall implement the June 2009 Freshwater Mussel Adaptive Monitoring Plan (mussel plan), as approved by the Federal Energy Regulatory Commission (FERC), except that DEQ shall require the following revisions:
  - a. The plan shall provide for an initial meeting of the Freshwater Mussel Technical Review Committee (TRC) prior to beginning any work identified in the mussel plan. The purpose of the meeting will be to review the planned activities and for participants to identify any potential changes to the plan in order to meet the plan's goals and objectives, or any potential impediments to conducting the plan activities, as described in the plan and in accordance with these permit conditions. The scope of any necessary changes or revisions shall pertain to the goals and objectives of the mussel plan over the term of this permit. The conclusions reached during this meeting shall be documented, and any necessary revisions to the mussel plan shall be submitted to DEQ and FERC within 60 days of the meeting. At a minimum, the mussel plan shall be revised to address the requirements of this permit in Part I.E.5.
  - b. Baseline mussel fauna data collection shall include, at a minimum, qualitative field surveys for mussel individuals and populations within the study area identified on the New River in the mussel plan. Baseline field survey locations shall be identified in consultation with the Freshwater Mussel Technical Review Committee (TRC) in

order to meet the specific goals and objectives of the mussel plan. Baseline qualitative surveys shall be conducted immediately upstream of the project and downstream of the project to at least the Route 11 bridge crossing. The necessity of further field survey locations downstream of the Route 11 Bridge to the Route 460 Bridge shall be determined in consultation with the Freshwater Mussel Technical Review Committee (TRC). Existing data from research conducted in the subject areas shall be accepted as supplemental information to in-the-field survey results.

- c. Long-term mussel fauna data collection shall include, at a minimum, quantitative field surveys at locations determined through consultation with the Freshwater Mussel Technical Review Committee (TRC), as deemed necessary and appropriate to meet the specific goals and objectives of the mussel plan.
- d. The data collected during the term of the mussel plan shall be adapted as necessary in consultation with the TRC to directly assess how depressed dissolved oxygen and temperature may affect mussel fauna. To meet the specific goals and objectives of the plan, additional or alternative collection and analysis methods may be deemed necessary, such as but not limited to, mussel tissue sampling and analysis, extended or additional water quality parameter monitoring, and partnering with others who are currently conducting or planning to conduct such studies, research, or analyses. The permittee may conduct such data collection through partnerships with other groups or organizations, or through other permittee studies, provided that those efforts address the goals and objectives of the mussel plan and assess potential effects on mussels from direct or indirect project operations. In addition to the direct data collection detailed in the mussel plan, information from a literature review shall be acceptable as supporting documentation to the studies and analyses required by this permit.

**Notification:**

6. Any fish kills or spills of fuels or oils shall be reported to DEQ Blue Ridge Regional Office-Roanoke immediately upon discovery at 540-562-6700. Additionally, any fish kills shall also be reported to the DEQ Central Office, Virginia Water Protection Permit Program at 804-698-4290. If DEQ cannot be reached, the spill shall be reported to the Virginia Department of Emergency Management (DEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802. Mitigation for aquatic impacts may be required.

7. The permittee shall notify DEQ of any additional impacts to surface waters, including wetlands; of any modifications to the discharge works; and of any change to the type of surface water impacts associated with this project. Any additional impacts, modifications, or changes shall be subject to individual permit review and/or modification of this permit.
8. The permittee shall include DEQ in all advisory groups, such as but not limited to committees and workgroups, formed for the purposes of coordination of project activities with interested stakeholders regarding water management, water quality management, erosion and sediment management, fish and wildlife management, vegetation management, debris management, habitat management, shoreline management, recreation management, and adaptive management. The permittee shall give DEQ a minimum of one week's notice for any meetings or conference calls planned for the advisory groups.

**Reporting:**

9. The permittee shall submit to DEQ a lake level and flow monitoring contingency plan in the case of equipment and/or gauge failure within 60 days of license issuance by the Federal Energy Regulatory Commission. The plan shall include all protocols that will be implemented to ensure compliance with this permit.
10. The permittee shall submit to DEQ the revised Water Quality Monitoring Plan and Freshwater Mussel Adaptive Monitoring Plan, as required by Part I.E.4 and I.E.5, within 120 days of license issuance by the Federal Energy Regulatory Commission. DEQ in consultation with appropriate advisory agencies shall review and comment on or approve the plans within 60 days of receipt.
11. The permittee shall submit to DEQ the results of all plan studies, demonstration projects, research, analyses, modeling, and stakeholder coordination efforts conducted for the authorized project activities. Unless specified otherwise in this permit or otherwise agreed upon through coordination efforts that involve DEQ, submittals shall be made in a timely manner after completing the subject activity, but in no case shall be submitted later than one year after completion of the activity.
12. The permittee shall prepare an annual monitoring report to demonstrate compliance with Part LD of the permit Special Conditions. The report shall be submitted by January 31<sup>st</sup> of the year following data collection and

mailed to the Virginia Department of Environmental Quality, Virginia Water Protection (VWP) Permit Program, P.O. Box 1105, Richmond, Virginia, 23218. Electronic submittal to the VWP permit manager shall be acceptable, provided the permittee confirms with the manager that the information was received. The annual monitoring report shall contain the following information at a minimum:

- a. the permittee's name and address;
  - b. the VWP permit number (09-0892);
  - c. the calendar date;
  - d. the average daily inflow to the project (cfs) as measured at the USGS Allisionia and/or Galax gauges;
  - e. the average daily reservoir level (feet NGVD) as measured at the Roanoke Operations Center and/or the American Electric Power System Control Center;
  - f. the required average hourly discharge (cfs) from the dam per Table 1;
  - g. the actual average daily discharge (cfs) from the dam;
  - h. any periods when the project operated under a DEQ- or FERC-issued variance; and any periods when the project operated in an emergency drawdown or a high-inflow drawdown mode.
13. All reports required by this permit and other information requested by DEQ shall be signed by the permittee, or a person acting on the permittee's behalf as a duly authorized representative with the authority to bind the permittee. A person is a duly authorized representative only if 1) the authorization is made in writing by the permittee; AND 2) the authorization specifies either the named individual or the named position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. If a change of the duly authorized representative occurs, the permittee shall immediately notify DEQ in writing, providing the new named individual or named position and contact information for the new duly authorized representative.
14. All submittals to DEQ shall contain the following signed certification statement:
- “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for

gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

## **Part II - General Conditions**

### **A. Duty to Comply**

The permittee shall comply with all conditions of the VWP permit. Nothing in the VWP permit regulations shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations and prohibitions. Any VWP permit violation is a violation of the law, and is grounds for enforcement action, VWP permit termination, revocation, modification, or denial of an application for a VWP permit extension or reissuance.

### **B. Duty to Cease or Confine Activity**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a VWP permit has been granted in order to maintain compliance with the conditions of the VWP permit.

### **C. Duty to Mitigate**

The permittee shall take all reasonable steps to minimize or prevent any impacts in violation of the permit which may have a reasonable likelihood of adversely affecting human health or the environment.

### **D. VWP Permit Action**

1. VWP permit may be modified, revoked and reissued, or terminated as set forth in 9 VAC 25-210 et seq.
2. If a permittee files a request for VWP permit modification, revocation, or termination, or files a notification of planned changes, or anticipated noncompliance, the VWP permit terms and conditions shall remain effective until the request is acted upon by the board. This provision shall not be used to extend the expiration date of the effective VWP permit. If the permittee wishes to continue an activity regulated by the VWP permit after the expiration date of the VWP permit, the permittee must apply for and obtain a new VWP permit or comply with the provisions of 9 VAC 25-210-185 (VWP Permit Extension).

3. VWP permits may be modified, revoked and reissued or terminated upon the request of the permittee or other person at the board's discretion, or upon board initiative to reflect the requirements of any changes in the statutes or regulations, or as a result of VWP permit noncompliance as indicated in the Duty to Comply subsection above, or for other reasons listed in 9 VAC 25-210-180 (Rules for Modification, Revocation and Reissuance, and Termination of VWP permits).

#### **E. Inspection and Entry**

Upon presentation of credentials, any duly authorized agent of the board may, at reasonable times and under reasonable circumstances:

1. Enter upon any permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the VWP permit conditions;
2. Inspect any facilities, operations or practices (including monitoring and control equipment) regulated or required under the VWP permit; and
3. Sample or monitor any substance, parameter or activity for the purpose of ensuring compliance with the conditions of the VWP permit or as otherwise authorized by law.

#### **F. Duty to Provide Information**

1. The permittee shall furnish to the board any information which the board may request to determine whether cause exists for modifying, revoking, reissuing or terminating the VWP permit, or to determine compliance with the VWP permit. The permittee shall also furnish to the board, upon request, copies of records required to be kept by the permittee.
2. Plans, specifications, maps, conceptual reports and other relevant information shall be submitted as required by the board prior to commencing construction.

#### **G. Monitoring and Records Requirements**

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 (2000), Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP permit, and records of all data used to complete the application for the VWP permit, for a period of at least three years from the date of the expiration of a granted VWP permit. This period may be extended by request of the board at any time.
4. Records of monitoring information shall include:
  - a. The date, exact place and time of sampling or measurements;
  - b. The name of the individuals who performed the sampling or measurements;
  - c. The date and time the analyses were performed;
  - d. The name of the individuals who performed the analyses;
  - e. The analytical techniques or methods supporting the information such as observations, readings, calculations and bench data used;
  - f. The results of such analyses; and
  - g. Chain of custody documentation.

## **H. Transferability**

This VWP permit may be transferred to a new permittee only by modification to reflect the transfer, by revoking and reissuing the permit, or by automatic transfer. Automatic transfer to a new permittee shall occur if:

1. The current permittee notifies the board within 30 days of the proposed transfer of the title to the facility or property;
2. The notice to the board includes a written agreement between the existing and proposed permittee containing a specific date of transfer of VWP permit responsibility, coverage and liability to the new permittee, or that the existing permittee will retain such responsibility, coverage, or liability, including liability for compliance with the requirements of any enforcement activities related to the permitted activity; and
3. The board does not within the 30-day time period notify the existing permittee and the new permittee of its intent to modify or revoke and reissue the VWP permit.

**I. Property rights**

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize injury to private property or any invasion of personal rights or any infringement of federal, state or local law or regulation.

**J. Reopener**

Each VWP permit shall have a condition allowing the reopening of the VWP permit for the purpose of modifying the conditions of the VWP permit to meet new regulatory standards duly adopted by the board. Cause for reopening VWP permits includes, but is not limited to when the circumstances on which the previous VWP permit was based have materially and substantially changed, or special studies conducted by the board or the permittee show material and substantial change, since the time the VWP permit was issued and thereby constitute cause for VWP permit modification or revocation and reissuance.

**K. Compliance with State and Federal Law**

Compliance with this VWP permit constitutes compliance with the VWP permit requirements of the State Water Control Law. Nothing in this VWP permit shall be construed to preclude the institution of any legal action under or relieve the permittee from any responsibilities, liabilities, or other penalties established pursuant to any other state law or regulation or under the authority preserved by § 510 of the Clean Water Act.

**L. Severability**

The provisions of this VWP permit are severable.

**M. Permit Modification**

A VWP permit may be modified, but not revoked and reissued except when the permittee agrees or requests, when any of the following developments occur:

1. When additions or alterations have been made to the affected facility or activity which require the application of VWP permit conditions that differ from those of the existing VWP permit or are absent from it;
2. When new information becomes available about the operation or activity covered by the VWP permit which was not available at VWP permit

issuance and would have justified the application of different VWP permit conditions at the time of VWP permit issuance;

3. When a change is made in the promulgated standards or regulations on which the VWP permit was based;
4. When it becomes necessary to change final dates in schedules due to circumstances over which the permittee has little or no control such as acts of God, materials shortages, etc. However, in no case may a compliance schedule be modified to extend beyond any applicable statutory deadline of the Act;
5. When changes occur which are subject to "reopener clauses" in the VWP permit; or
6. When the board determines that minimum instream flow levels resulting from the permittee's withdrawal of water are detrimental to the in stream beneficial use and the withdrawal of water should be subject to further net limitations or when an area is declared a Surface Water Management Area pursuant to §§ 62.1-242 through 62.1-253 of the Code of Virginia, during the term of the VWP permit.

#### **N. Permit Termination**

After notice and opportunity for a formal hearing pursuant to Procedural Rule No.1 (9 VAC 25-230-100) a VWP permit can be terminated for cause. Causes for termination are as follows:

1. Noncompliance by the permittee with any condition of the VWP permit;
2. The permittee's failure in the application or during the VWP permit issuance process to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;
3. The permittee's violation of a special or judicial order;
4. A determination by the board that the permitted activity endangers human health or the environment and can be regulated to acceptable levels by VWP permit modification or termination;
5. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP permit; and

6. A determination that the permitted activity has ceased and that the compensatory mitigation for unavoidable adverse impacts has been successfully completed.

**O. Civil and Criminal Liability**

Nothing in this VWP permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

**P. Oil and Hazardous Substance Liability**

Nothing in this VWP permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

**Q. Unauthorized Discharge of Pollutants**

Except in compliance with this VWP permit, it shall be unlawful for the permittee to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances;
2. Excavate in a wetland;
3. Otherwise alter the physical, chemical, or biological properties of state waters and make them detrimental to the public health, to animal or aquatic life, to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses;
4. On or after October 1, 2001, conduct the following activities in a wetland:
  - a. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions;
  - b. Filling or dumping;
  - c. Permanent flooding or impounding;
  - d. New activities that cause significant alteration or degradation of existing wetland acreage or functions.