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OFFICE OF ENERGY PROJECTS

Project No. 739-018 – Virginia
Claytor Project
Appalachian Power Company

Ms. Teresa Rogers
Appalachian Power Company
40 Franklin Road
Roanoke, Virginia 24011

Reference: Modifications to existing studies for the Claytor Project

Dear Ms. Rogers:

Pursuant to 18 CFR § 5.15(c)(6) of the Commission regulations, this letter contains my determination on requests for modifications to existing studies for the Claytor Project No. 739.

Background

Appalachian Power Company (Appalachian Power) filed its second initial study report on May 1, 2008.¹ As required by the regulations, the report described the overall progress in implementing the study plan and data collected, and included an explanation of variances from the study plan and schedule. Appalachian Power held a second initial study report meeting on May 12-15, 2008, and filed a meeting summary on June 12, 2008.

Comments on the initial study reports were received from the Virginia Department of Game and Inland Fisheries (Virginia DGIF), Virginia Department of Conservation and Recreation, Friends of the New River, Laura Bullard, and several other private entities. Generally, the comments addressed the quality of the study reports; made specific recommendations on data analysis; and suggested possible protection, mitigation, and enhancement (PM&E) measures including adaptive management measures to be incorporated into a new license.

¹ In a letter issued March 17, 2008, the Commission revised the process plan to include a second initial study report and meeting because a number of first year studies had not been completed at the time the initial study report was filed on November 17, 2006.

Although Virginia DGIF indicated that it was not requesting any additional studies, it did recommend that specific habitat information for mussels, crayfish, and hellbender be collected during mussel surveys planned for summer 2008 that could be used in the instream flow needs assessment.

A modification to the aquatic resources assessment study was requested by Laura Bullard, landowner and Friends of Claytor Lake board member, on July 14, 2008. Laura Bullard requested a survey of mussels to be conducted during the last 3 days of the planned impoundment drawdown scheduled for November 2008 to assess mussel mortality due to the drawdown.

On August 13, 2008, Appalachian Power filed its response to comments on the second initial study report and meeting summary and included a revised sampling protocol for its 2008 mussel and crayfish surveys which are part of the aquatic resources assessment, and an additional scope of work for a study to address the relationship between flow releases and recreation opportunities on the New River from Claytor dam to Glen Lyn, Virginia. Appalachian Power indicated that it would address recommendations for PM&E measures in its preliminary licensing proposal.

Pursuant to CFR 18 §5.15(d), any proposal to modify an ongoing study must be accompanied by a showing of good cause why the proposal should be approved, and must demonstrate that: (1) the approved studies were not conducted as provided for in the approved study plan; or (2) the study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way. As specified in §5.15(e), new study requests must also show good cause and a statement explaining: (1) any material changes in the law or regulations applicable to the information request; (2) why the goals and objectives of any approved study could not be met with the approved study methodology; (3) why the request was not made earlier; (4) significant changes in the project proposal or that significant new information material to the study objectives has become available; and (5) why the new study request satisfies the study criteria in §5.9(b).

Virginia DGIF, Laura Bullard, and Appalachian Power did not address the specific requirements under §5.15 of the Commission regulations. However, the rationale for the staff's findings on the requested modification and revised study plans are presented in the attached appendix.

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Study Plan Determination

Appalachian Power's revisions to the study plan filed on August 13, 2008, including the modification to the aquatic resources assessment study requested by Laura Bullard, and the additional recreational flow study are approved.

If you have any questions, please contact John Smith at (202) 502-8972.

Sincerely,

J. Mark Robinson
Director
Office of Energy Projects

Enclosure: Appendix A, Staff's Recommendations and Findings on Requested Study Modifications

cc: Mailing List
Public Files

APPENDIX A – STUDY REQUEST ISSUES

Staff’s Recommendations and Findings on Requested Study Modifications

Aquatic Resources Assessment

The aquatic resources assessment under the approved study plan includes an assessment of mussel distribution and mortality that is to be conducted during the fall maintenance drawdown at Claytor Lake. Section 3.2.2 of the draft study report (April 2008) indicated that the mortality survey would be conducted during the first 3 days of the drawdown. Laura Bullard in a letter filed July 14, 2008, requested a modification to the current study approach to include an additional survey during the last 3 days of the drawdown to assess mussel mortality due to the exposure.

Appalachian Power’s revised study protocol for the mussel survey filed on August 13, 2008, includes two surveys, one immediately after the lake has reached the lowest point of the drawdown and one immediately before the lake begins to refill. The two surveys would be used to determine densities of mussel species exposed during the drawdown and potential mortalities due to the exposure. Therefore, Appalachian Power’s revised study protocol fulfills the original objective of the Commission-approved study plan and addresses the modifications requested by Laura Bullard.

Instream Flow Needs and Reservoir Elevations

Section 5.0 of the instream flow needs study plan included mussels, crayfish, and hellbender among a list of target species to be studied to determine the importance of flow-related effects on life history requirements. If habitat suitability curves were available for the target species or could be derived, they were to be used in the PHABSIM² model of the instream flow study. If curves were not available, the study plan indicates that flow-related effects would be inferred from the literature and expert testimony or a surrogate species was to be used in the modeling exercise. The study plan determination letter issued by the Commission on November 17, 2006, stated that while hellbender and crayfish studies were not required at that time, if data on the habitat requirements of hellbender and crayfish are unavailable, site specific studies could be required during the second field season.

In its comments on Appalachian Power’s second initial study report and meeting summary, the Virginia Department of Game and Inland Fisheries (Virginia DGIF) indicated it was not requesting any additional studies. However, Virginia DGIF stated that if appropriate habitat suitability criteria for mussels were not available, Appalachian Power must obtain this information through field studies. Specifically, Virginia DGIF

² PHABSIM software is used to develop the relationship between streamflow and physical habitat for various species life stages of aquatic organisms.

recommended that habitat suitability curves for three separate depth and velocity guilds for *Elliptio dilatata* (spike mussel)³ be used in the instream flow needs assessment and that these curves be field verified at sites upstream and downstream of Claytor Lake. In addition, Virginia DGIF recommended that habitat information on *Cyclonaias tuberculata* (purple wartyback) be collected in the field during the 2008 mussel surveys. Regarding crayfish, Virginia DGIF acknowledged that Appalachian Power would collect habitat data during the mussel surveys and attempt to construct habitat suitability curves to use in the instream flow study. With respect to hellbender, Virginia DGIF also recommended that Appalachian Power obtain instream flow data through field studies. Virginia DGIF recognizes the difficulty in applying the Instream Flow Incremental Methodology (IFIM)⁴ to mussels and recommends an adaptive management approach for addressing the habitat needs for mussels upstream and downstream of Claytor Lake.

Friends of the New River (FONR) also recommends an adaptive management approach to evaluating the effects of the Claytor Project on both mussels and hellbender. FONR believes that while habitat modeling under the IFIM might yield some useful information for these species, it cannot take the place of longer-term studies.

Appalachian Power's revised study protocol for the 2008 season (second study season) filed on August 13, 2008, includes the collection of habitat suitability data for mussels and crayfish at specified sampling sites downstream of Claytor dam. However, Appalachian Power did not comment on the use of spike mussel habitat suitability curves. Although hellbender surveys were not specified in the revised sampling protocol for 2008, Appalachian Power indicates in its August 13 filing that if hellbender are encountered during the mussel and crayfish surveys, habitat information would be collected in an attempt to construct an unbiased habitat suitability curve for the New River.

Appalachian Power's intent to collect habitat information for mussels, crayfish, and hellbender as described in its August 13 filing, is consistent with the requirements of the approved study plan as modified by the Commission's study plan determination letter. We acknowledge that these efforts might yield information sufficient to generate site-specific habitat suitability curves for these species or field verify the existing curves for the spike mussel to be used in the IFIM modeling. However, we agree with Virginia DGIF and FONR that an adaptive management concept based on long-term monitoring

³ Proposed curves were presented in a technical memorandum dated May 23, 2008, from Thomas R. Payne & Associates Fisheries Consultants (technical memorandum) to the instream flow needs workgroup.

⁴ The IFIM is a tool developed by the U.S. Fish and Wildlife Service to evaluate the relationship between flow and habitat.

under different flow regimes may provide more useful information for these species. Site-specific information obtained from the proposed surveys may not be sufficient to develop habitat suitability curves, and habitat factors⁵ other than depth, velocity, substrate and cover, which are typically incorporated into an IFIM analysis, may be more significant in explaining variability in habitat utilization for these species than the parameters considered in typical IFIM analyses. Therefore, we don't recommend that Appalachian Power attempt to collect additional habitat information for these species beyond the data that has been collected to date⁶ and that the instream flow needs assessment focus on the species for which habitat suitability criteria are available. Appalachian Power should consider the use of an adaptive management approach consisting of monitoring populations of these species under different flow regimes as a potential enhancement measure.

Recreation Assessment and Angler Use Survey

Appalachian Power's 2007 recreation and angler use study included 541 interviews with recreation access users at the New River downstream from the project; eight of the questions on the survey solicited information regarding the impact of flows on recreation experiences. More than half of those surveyed who were canoeing, kayaking, boat fishing, or bank angling indicated that flow levels influence how they recreate on the New River. The draft recreation study report, however, did not include a detailed characterization of how recreational use could change under different flow regimes. Appalachian Power explains in the report that naturally low-flow conditions during 2007 and other challenges inherent in the study design⁷ limited the usefulness of survey results related to flow preferences.

⁵ For example, Ostby (2005) as cited in the May 23, 2008, technical memorandum indicated that one of the measures that best explained mussel occurrence was a measure of velocity shear stress known as Fleisswasserstammtisch (FST) hemisphere number. FST is based on movement of identically shaped, variable-density, spheres that are placed on the substrate.

⁶ The 2008 sampling protocol filed on August 13, 2008, indicated that the mussel, crayfish, and hellbender surveys would be conducted from July 21 through July 26 for upstream sites and August 4 through August 22 for downstream sites.

⁷ Limitations noted by Appalachian Power in the draft recreation study report include: (1) study design weighted weekend dates (2:1), which reduced the opportunities to capture users during the week when the operations are more dynamic; (2) visitor responses within the same activity and at the same flows often conflicted with each other; (3) people are generally willing to adapt to conditions (they were aware of the drought and prepared accordingly), creating a bias towards trip satisfaction regardless of project

During the May 15, 2008, meeting there was general agreement to use a focus group approach to identify specific flow needs for various recreation activities downstream from the project. Although no formal study requests were submitted, written comments consistently indicate a need for further information regarding recreational flows. The Virginia Department of Conservation and Recreation (Virginia DCR), in its letter filed July 10, 2008, acknowledges that below-normal precipitation in the region prevented Appalachian Power from evaluating the effects of different flow rates on recreational boating, tubing, fishing, and land-based recreation adjacent to the river. Virginia DCR notes that the existing fishery attracts recreation users to the river, and requests that Appalachian Power describe the relationship between project operation and recreational impacts. Virginia DGIF agrees, in a letter filed July 11, 2008, that focus group work should be explored, since very few survey respondents experienced high flows due to the drought and users' flow preferences are not yet fully understood. FONR also agree, in their comments filed July 14, 2008, that additional study efforts may provide necessary information regarding the relationship between project operation and recreational experiences. FONR notes that the results of the completed surveys suggest that an appropriate minimum instream flow for recreation may be higher than the current minimum average daily flow of 750 cubic feet per second, and that the timing of increases in flow could be improved in order to allow for surges at a popular whitewater location (McCoy Falls) at the appropriate time. Lastly, several downstream recreationalists and outfitters contacted Appalachian Power with concerns about peaking and the effects of flow releases on recreational fishing downstream from the project.

Attachment 3 to Appalachian Power's August 13, 2008, filing describes objectives and a methodology for a proposed additional study to assess the effects of different operational regimes on flow-dependent recreation in the 56-mile segment of the New River between Claytor Lake and Glen Lyn. This plan would use a phased approach, with a review of existing information, limited reconnaissance of river segments, and focus group meetings with experienced recreation users for targeted activities. The plan includes a schedule for the field work, focus group interviews, and reports, with the final report being completed in late November 2008.

One of the objectives of the approved study plan's recreation assessment and angler use survey is to "evaluate recreational needs in the project area... and identify and assess potential impacts on downstream and reservoir-based recreation due to the project, its operation or proposed modifications," and the Commission's study plan determination requires a methodology that allows for an assessment of impacts on recreation from changes in project operation (flows and reservoir levels). As noted by Appalachian

operations; and (4) analyzing data by primary activity or type of watercraft diminishes the sample size, particularly when further queried by location.

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Power and several parties, the 2007 recreation study did not adequately meet this objective, due primarily to anomalous environmental conditions (low precipitation in the region). It also appears likely that, even under normal conditions, inherent challenges in analyzing the survey results would have resulted in a limited assessment. The results from the proposed additional study will help Appalachian Power, agencies, stakeholders, and Commission staff to evaluate the effects of alternative flow regimes on downstream recreation, thereby satisfying the original study objective and addressing the concerns of the stakeholders.

LITERATURE CITED

Ostby, B.J.K. 2005. Characterization of suitable habitats for freshwater mussels in the Clinch River, Virginia and Tennessee. M.S. Thesis, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. March 2005. 203 pp.

Document Content(s)

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