

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Water and Science Administration
Water Supply Program
Response to Comments
In the matter of
Water Appropriation and Use Permit Application No. GA1992S009/09
Brookfield Power Piney & Deep Creek, LLC
Deep Creek Hydroelectric Station
September 2, 2020

Hearing Date: October 15, 2019

End of Public Comment Period: December 16, 2019

Introduction

This document provides responses to comments received on Brookfield Power Piney & Deep Creek, LLC's (hereafter referred to as "Brookfield") request to renew its Water Appropriation and Use permit for the Deep Creek hydroelectric station. Brookfield requested to renew its permit with an increase in the average annual flow limitation from 94,000,000 gallons per day to 128,000,000 gallons per day. No change was requested in the maximum daily withdrawal limitation of 420,000,000 gallons per day. The Maryland Department of the Environment (MDE) Water Supply Program (WSP) received numerous emails commenting on the permit application since the publishing of the notice of application in September 12, 2019. Verbal comments were received at the public informational hearing. Comments with very similar or identical points were summarized for a common response.

Background - Previous Permits

The Deep Creek hydroelectric station has been in operation since 1925. The construction of a dam across Deep Creek, power tunnel that would connect the newly formed Deep Creek Lake and the powerhouse, and powerhouse began in 1923. The hydroelectric station is operated so that water leaving Deep Creek Lake goes through the powerhouse, rather than spilling over the dam. This serves to protect the dam integrity, prevent uncontrolled releases, protecting public safety and maximizes the beneficial use of water for power production. There are two turbines located within the powerhouse that can generate about 20 megawatts of electric power. The

Deep Creek hydroelectric station is used as a peaking plant. Periods of generation target peak daily electric demands during summer and winter to take advantage of the relatively higher power value. The Federal Energy Commission (FERC) issued a license to the Pennsylvania Electric Company (Penelec) in 1968 for the operation of the Deep Creek hydroelectric station. In 1991 FERC informed Penelec that this facility would be released from federal oversight.

Penelec made application for a Maryland Water Appropriation and Use Permit in 1992 for the Deep Creek operation. In 1993 and revised in 1994, Penelec filed a detailed support document in support of their application. The support document (Chapter 4) identified seven objectives for operating the hydroelectric facility. The document (“Deep Creek Station – Support Document for Application to Appropriate and Use Water of the State” first submitted August 1993 and then revised in April 1994 – hereafter referred to as “Penelec Support Document (1994 Revision)”) can be found on MDE’s website for the Deep Creek project. See this link https://mde.maryland.gov/programs/Water/water_supply/Pages/DeepCreekLake.aspx.

The seven objectives are: (1) maintain project capacity, energy and reliability; (2) support recreation on Deep Creek Lake; (3) enhance fish habitat in the Youghiogheny River; (4) enhance water temperatures in the Youghiogheny River for brown and rainbow trout; (5) enhance whitewater boating opportunities in the Youghiogheny River; (6) minimize the potential for lake shoreline erosion; and (7) reduce the potential for entrainment of walleye and perch fry. These objectives are sometimes complementary and sometimes in competition with power generation and with each other.

The Water Resources Administration of the Maryland Department of Natural Resources (DNR) granted a Water Appropriation and Use Permit GA1992S009(01) to Penelec effective January 1, 1994 that included conditions addressing each of these objectives.

The manner in which permit conditions in the first permit addressed each objective are explained below.

The permit specified hydroelectric generation as a use of the water. The energy capacity of the hydroelectric plant was ensured by the maximum daily withdrawal limit in the permit (420,000,000 gpd), as this value corresponds to the hydraulic capacity of the hydroelectric facility. The large storage volume of Deep Creek Lake, supported by runoff from the watershed, is the source for the reliable generation of power. The capacity of the hydroelectric facility enables the power production to almost always ensure no releases of water over the dam spillway, and thereby enabling the water received into Deep Creek Lake to be used for power generation before being released into the Youghiogheny River. In order for the permit to allow for the maximum beneficial use (such as would occur in a very wet year) the average annual quantity of 94,000,000 gpd authorized by the permit was the maximum annual average usage as determined from review of sixty years of facility records prior to 1991. The establishment of the Rule Band in the first permit provided boundaries for the lake storage volume across the

year, preventing overuse and ensuring a return each year to the desired lake elevations. As a peaking plant the facility has relied on the high storage volume in the lake, for relatively short durations of generation to meet peak electricity demands. The Penelec Support Document(1994 Revision) indicated that winter and summer were the more favorable seasons (economically) for generation of electricity for peaking needs. Maintaining low lake levels in the winter (also for Dam Protection) ensured generation during this time. Allowing for spring refill coincided with less generation in the spring, when electricity prices were lower. A descending Rule Band through the summer is consistent with the amount of water entering the lake during this period typically being less than the combined lake losses from evaporation, wicket gate leakage, scheduled whitewater releases, temperature enhancement releases and bypass flow requirements. Electricity generation during whitewater and temperature enhancement releases is consistent with the primary purpose (electricity generation) of the Deep Creek station. The generation of electricity through renewable hydropower is in the public interest.

Lake recreation was also supported through the creation of the Rule Band elevations in the first permit. The Rule Band identified the upper and lower desirable lake elevations to be achieved at the end of each month. In addition, Penelec's operating rules limited project generation in April and May to increase the likelihood of filling DCL to elevation 2461 feet by the end of May. A high lake elevation entering the summer enhances potential for maintaining higher lake levels through the recreation season, which is a benefit to lake recreation. The established end of month Lower Rule Band elevations for summer and early fall were higher than the previous average lake levels values documented from 1970 to 1990, with the goal of enhancing recreation opportunities for more people on Deep Creek Lake (DCL).

Fish habitat in the Youghiogheny River was enhanced by permit conditions requiring maintenance of a minimum stream flow in the Youghiogheny River downstream of the project tailrace and by requiring all project discharges to meet Maryland's water quality standards for dissolved oxygen. The required minimum stream flow of 40 cubic feet per second (cfs) correlated with achieving 48% of the maximum available habitat for brown trout in the river reach between the tailrace and Sang Run. The minimum flow objective was required to be met via the installation of a bypass flow around the turbines. A higher minimum flow for the Youghiogheny River of 60 cfs (which corresponds to achieving 60% of the maximum available habitat) was also modeled, but it was determined that it would significantly reduce project generation opportunities and impact lake levels significantly during a dry year (thus it was not selected). The first permit required the installation of a bypass system to ensure that adequate water could be reliably delivered to meet the 40 cfs flow requirement. To address seasonally low dissolved oxygen present in the project discharge starting with June releases, the first

permit required the installation of a tailrace weir designed to meet Maryland's water quality standards for dissolved oxygen.

A temperature of 25 degrees Celsius (C) was selected as the maximum allowable temperature in the Youghiogheny River between the tailrace and Sang Run for brown trout and rainbow trout. The permit required the development and implementation of a plan relying on real time temperature monitoring in the Youghiogheny and other factors to predict the need for a release on that day, to keep temperatures in the designated section of the Youghiogheny River from exceeding 25 degrees C. The permit required the plan for Temperature Enhancement Releases (TERs) to be implemented each day during the months of June, July and August. Starting at 7:00 am each day the plan required the permittee to make multiple evaluations each day (unless the River flow was in excess of the flow threshold) to determine if a release is needed. The Penelec Support Document (1994 Revision) acknowledges that a temperature threshold of 22 degrees C was the upper optimum temperature for brown trout, but making 22 degrees C the target maximum temperature would "require a substantial increase in the number and duration of releases and lower lake levels." Thus a temperature of 22 degrees C was not selected.

Whitewater boating opportunities were enhanced through the establishment of scheduled release days and times throughout the recreation season (mid-April through mid-October). The schedule also included two special release events. Temperature Releases of two hour duration provide recreational boating opportunities for persons within a two to three hour drive of the River.

To reduce the potential for erosion of sensitive lake shoreline areas it was recommended that lake levels not exceed 2461 feet, which is the highest elevation of the Upper Rule Band.

The rising of the Rule Band elevations from the winter to the early spring season reduced generation opportunity during this time and consequently reduced the potential for entrainment of walleye and perch fry during the period when they are most susceptible to entrainment.

The permit also required monitoring and the submission of data for: water usage; daily lake level readings; flow in the Youghiogheny River; occurrence of bypass releases; dissolved oxygen measurements in the project tailrace; continuous temperature readings from June 1 through August 31 of the Youghiogheny River at Sang Run; times and dates of generation releases not suitable for whitewater recreation; and zebra mussel monitoring. The permit required that water usage data be provided semi-annually. The permit also required the submission of an annual report in January for the previous year's data on all of the other required monitoring.

Each of the annual reports submitted to MDE can be found on MDE's website at this link:
https://mde.maryland.gov/programs/Water/water_supply/Pages/DeepCreekLakePeriodicReports.aspx

Since 1994 there have been multiple permits issued by the Maryland Department of the Environment to reflect ownership changes of the dam and hydroelectric plant. The last two permit revisions (version (07) issued in 2007 and version (08) issued in 2011) incorporated modifications requested by stakeholders and agreed to by Brookfield.

Permit GA1992S009(07), issued in 2007, incorporated changes in the whitewater schedule. These changes reduced the number of scheduled Monday releases and increased the number of Saturday scheduled releases. Saturday releases were made the priority, if lake levels were not more than one foot below the Lower Rule Band (LRB), whereas the first permit preserved Friday releases under these same lake level conditions. The 2007 permit also introduced variable flow releases for the third hour of scheduled whitewater releases, with conditions tied to River flow levels. Version (07) specified the Team Friendsville Race as one of the two special whitewater releases in lieu of an August weekday race designated in the first permit. Brookfield worked with stakeholders to develop these changes and received endorsements. This permit version continued to maintain all seven project objectives of the first permit.

Permit GA1992S009(08), issued in 2011, was undertaken at the request of lake stakeholders. The Water Supply Program also sought out input from other stakeholders. This revised permit modified the Upper Rule Band(URB) by continuing the URB elevation of 2461 feet from June 30 to July 31 and subsequently increasing the URB elevations for each month from July through October. The end of month elevation (all in feet) changes in the URB were: July, 2460 – previous, 2461- new; August, 2459-previous, 2460-new; September, 2458.5-previous, 2459-new; and October 2457.9-previous, 2458-new. These changes allowed a greater potential to maintain higher lake levels through the Lake recreation season. The permit also allowed temporary (21 days) excursions of up to 0.3 feet above the URB from May through October. In order to obtain better accounting of wicket gate losses through the hydroelectric plant, version (08) required Brookfield to make flow measurements of wicket gate leakage, determine potential changes to their facility to reduce losses and submit reports to the Department on this issue. This permit version also continued to maintain all seven project objectives of the first permit and comprehensive data reporting.

Public Participation for GA1192S009/09

As part of Brookfield's permit application requirements, Brookfield hosted a series of three stakeholder meetings in the Deep Creek Area, inviting stakeholders with an interest in the permit. Those meetings were held on February 28, 2019, March 28, 2019 and April 25, 2019. Meeting summaries, and presentations made at those meetings were uploaded to MDE's website within a short period of time after the meeting was held. The link to these meeting summaries can be found here:

https://mde.maryland.gov/programs/Water/water_supply/Pages/DeepCreekLakeRenewalProcessFor09.aspx

A TER workgroup met on August 1, results from that meeting can be found at the above link. Notice of a second TER workgroup meeting held on December 4, 2019, was also posted on MDE's website.

Maryland law requires an applicant seeking an increase in a large appropriation to provide notice to contiguous property owners and authorize publication of a notice prepared by MDE to be published in a local paper with opportunity for a public informational hearing. Since MDE received a request for a public informational hearing prior to the publication of the newspaper notice, the date for the hearing was included in the newspaper notice. This notice was also mailed by MDE to property owners contiguous to Brookfield's property, elected officials, and stakeholders. The newspaper notice was published in the local newspaper, The Republican, on September 12, 2019. The public informational hearing was held on October 15, 2019 at Garrett College, McHenry Maryland. More than seventy (70) persons were in attendance. After presentations by Brookfield and MDE members of the public made comments. The powerpoint slides from those presentations and recording of the public informational hearing can be found at the above link. The public comment period was kept open until December 16, 2019. The remainder of this document will provide a summary of the comments received and MDE's response to those comments. A summary of the Water Supply Program's technical analysis is enclosed with the notice of the Final Permit decision, a separate document.

Comments Received for GA1992S009/09 application

The issues that generated the most comments on the permit application were: lake levels and the rule bands; Temperature Enhancement Releases; and proposed modifications to enhance whitewater recreation.

One stakeholder group, (Friends of Deep Creek Lake (FoDCL)) provided written comments informing MDE of their opposition to the Brookfield Water Appropriation and Use Permit Application. FoDCL opposes the requested increase annual average limitation and objected to the scope of the permit review process. FoDCL proposed five areas for MDE to remedy prior issuing a permit. FoDCL also urged the State to utilize the Water Appropriation and Use Application review process as a catalyst for the creation of a broad policy review of Deep Creek Lake management as well as for 15 state-owned or managed lakes. FoDCL stated that the Application should not be approved without a commitment from the State of Maryland and Brookfield to implement and fund dredging and remediation of the 10 sediment impaired coves of Deep Creek Lake and implement and fund shoreline stabilization protections for the entire State-owned lake buffer strip.

This response to comment document will first address those issues that generated the greatest number of written comments, next address comments from the public hearing not covered by the three main issues and conclude with responses to issues raised by the FoDCL.

Brookfield informed MDE that they were not seeking to change any conditions affecting its operations during this permit renewal process. (The need for the change in the average annual authorization of the withdrawal quantity is discussed later in this document). MDE, however, received multiple requests for changes to the permit by various stakeholder groups. MDE considered how each request change would impact Brookfield, the interests of the stakeholder groups and the State's natural resources. MDE believes that the changes which have been accepted and incorporated into the new permit have upheld the original permit objectives, and improved conditions for stakeholders without unreasonably impacting the State's water resources or other users of the waters of the State. As the trustee of the State's water resources, MDE has sought to improve the permit for the benefit of the people of Maryland and in the public interest consistent with Maryland law.

Comments on the Rule Bands

Stakeholders supported the maintenance of the existing Upper and Lower Rule Band elevations. This consensus was determined at the third stakeholder meeting on April 25, 2019. MDE received comments on various aspects of the Rule Bands – comments and responses follow.

Comment: Commenters requested that Brookfield use a predictive model to manage water levels to keep lake levels from dropping below the Lower Rule Band and to take full advantage of generation opportunities in wet years.

MDE Response: Brookfield's presentation to stakeholders at the March 28, 2019 stakeholder meeting and at the public informational hearing on October 15, 2019 outlined how they use data to model/predict water availability for required and discretionary releases throughout the year. The presentations outlined the data that is analyzed, scheduling methods, and scheduling goals for different times of year, daily confirmation steps and adjustments, communication across their company regarding daily decisions, and communication to potential users of generation releases for recreation. The presentations described their goal to maintain water levels near the Upper Rule Band (URB) from May 1 to November 1 and the steps that they take to achieve that plan. An important feature in the plan is to ensure that the lake reaches the URB level of 2461 feet by May 1, by limiting generation in March and April to allow the lake to gain in elevation from the spring runoff. From May 1 to August 1 Brookfield uses their scheduling tool accounting for all water release requirements with a 30 day forecast. After August 1 to November 1, Brookfield follows the scheduled releases, to follow the rate of decline in the upper rule band. Brookfield also assessed the usefulness of the Water Budget Model prepared for the Deep Creek Watershed Foundation for Deep Creek Lake, and concluded

that this evaluation enabled stakeholders to better understand Brookfield's water level management goals for Deep Creek Lake and the predictive methods already utilized by Brookfield. The link to Brookfield's presentation to the stakeholders can be found here: https://mde.maryland.gov/programs/Water/water_supply/Documents/Deep%20Creek%20Lake/StakeholderMtgs2019/DCL-MtgNumTwo-BrookfieldWaterResources-2019-03-28.pdf.

MDE has modified Condition 14 of the Water Appropriation and Use Permit to enshrine the goal of reaching the URB elevation of 2461 feet by May 1 of each year. As described in Brookfield's March 28, 2019 presentation, a key factor in avoiding excursions below the Lower Rule Band (LRB) during the recreation season is to reach the URB in May and stay as close as possible to the URB elevation of 2461 feet for as long as possible. MDE has also modified Condition 14 to require Brookfield to utilize their scheduling tool (predictive model) to help achieving the goal of maintaining water levels at or just below the URB from May 1 through November 1. The two changes reduce the likelihood of the lake reaching the LRB but is not an absolute guarantee. But the changes should prevent discretionary generation from contributing to a situation where the lake levels drop below the LRB.

Neither the LRB nor the URB was established as an absolute threshold. The permit has always referenced the end of month elevations of the URB and LRB as the highest and lowest desirable reservoir levels at the end of each month, recognizing the high level of variability in weather conditions during any particular season. MDE believes that instituting these changes in the permit are positive steps for all stakeholders and will monitor the success of this approach.

Comment: Several lake front property owners indicated that high water levels in 2019 and in previous years in spring and early summer had contributed to increased shoreline erosion. A commenter observed that water levels above the URB elevation of 2461 feet had persisted for days in 2019. Photographs from property owners showing high water levels, and eroded shorelines were submitted to MDE. The following additional concerns from high water levels are damage to docks, potential loss of shoreline trees and increased sedimentation in the lake. A commenter noted that high water levels in 2019 coincided with the Independence Day long weekend. Another commenter pointed to the increased shoreline waves from intensive lake boating, that were being generated constantly throughout the day coincident with the high-water levels, thereby increasing the amount of shoreline erosion. The Chamber of Commerce requested that MDE work with Brookfield to reduce the impacts of high-water levels by reducing the length of time that high water levels occurred in 2019. A commenter expressed the concern that the maintenance of high-water levels was being driven by the concerns of property owners with shallow water frontage at the expense of other property owners.

MDE Response: After receiving complaints from property owners of high-water levels in early July of 2019, MDE obtained lake water level records from Brookfield for 2019. These records show that water levels were above the URB elevation of 2461 feet for 23 of 31 days in May, 19

of 30 days in June, and all of the first 8 days in July. None of the periods exceeded 21 days (Permit Condition 14 allowed for 21 day excursions of up to 0.3 feet above the upper rule band). Lake inflow (from review of the USGS flow records on Cherry Creek) show median to above median flow from early May to mid-June, and significantly elevated flows from late June and early July. MDE has, after consultation with DNR and discussions with Brookfield decided to modify Permit Condition 14 to reduce the length of time during which an excursion up to 0.3 feet above the URB can persist, to 10 days if above elevation 2461 feet. Excursions above the URB but below elevation 2461 feet may continue for up to 21 days. Permit Condition 14 also requires Brookfield to utilize generation in a timely and sufficient manner to minimize the period above URB elevation 2461 feet. This condition is consistent with the intent of the Penelec operating rules described in the Penelec Support Document (1994 Revision) which required a minimum of 32 unit hours of generation a day if lake levels were between 2461 and 2461.4 feet elevation. An additional change to Permit Condition 14 to reduce shoreline erosion potential identifies the Memorial Day weekend and the first week in July for avoiding URB excursions. Issues regarding boat traffic and wake are outside the scope of this Water Appropriation and Use Permit and are within the regulatory authority of the Department of Natural Resources (See DNR regulations for Deep Creek Lake at COMAR 08.18.33).

Comment: The Property Owners Association (POA) and many lake property owners requested that the permit be modified to prohibit all releases when lake levels reach the Lower Rule Band. The POA noted that late season dock access problems for 200 to 350 property owners at the late season Lower Rule Band elevations.

MDE Response: The Water Appropriation and Use Permit for the Deep Creek hydroelectric station is designed to achieve seven different objectives for the public interest as discussed in the opening section of this document. The establishment of the Upper and Lower Rule Bands in the first permit was designed to improve water levels for lake recreational uses while ensuring that the primary hydropower objective was maintained along with other permit objectives.

MDE's analysis of lake level data shows that higher late season water levels had indeed been accomplished. MDE compared mid-month and end of month values since the rule bands were established with lake level data from 1970-1990 provided in Table 3-16 (pg 3-213) of the Penelec Support Document (1994 Revision). End of month and mid-month late season lake levels (from August 31 to October 31) have been consistently and considerably higher since 1994. Lake elevations on August 31 for the past 25 years were on average 0.9 feet higher when compared to the 1970 – 1990 period. Lake elevations on September 15 for the past 25 years were on average 1.4 feet higher when compared to the 1970-1990 period. Lake elevations on September 30, October 15 and October 31 for the past 25 years were on average 1.7 feet higher when compared to the 1970-1990 period.

Late season lake levels for the past 25 years were also compared to the Lower Rule Band (LRB) elevations. Average lake levels for August 31, September 15, September 30, and October 15 for the past 25 years were all 0.7 feet higher than the LRB elevation for those dates. The average lake level for October 31 for the past 25 years was 0.9 feet higher than the LRB elevation for October 31. Improved late season lake levels were accomplished with the permit conditions that allow for TER releases to be independent of the lower rule band and with the requirement that of three scheduled whitewater releases per a typical week (Friday – Monday) only one whitewater releases be permitted, if lower rule band levels are reached.

The great majority of dock slips are not negatively impacted by late season LRB levels. The Deep Creek Watershed Foundation estimated 9% of the total docks are impacted at lake elevation 2458 feet, and 15% of the total docks are impacted at lake elevation 2456 feet (presentation to MDE in April 2018). Their data shows that about 80% of the impacted docks are in the coves south of Glendale Road. The higher lake levels since the issuance of the first Water Appropriation and Use permit have improved lake recreation opportunities, compared to what it could have been, had not the permit and rule band been adopted. Higher lake levels have resulted due to less water being available for power generation during the summer season. To eliminate all whitewater recreation and TER releases when LRB elevations are reached also eliminates the beneficial use of water for power generation. The proposal could significantly increase mortality in the brown and rainbow trout population (impacts of temperature on trout are discussed in the section on TER comments) and would threaten the viability of whitewater rafting businesses during years of low water.

The Town of Friendsville’s comments to MDE specifically opposed the request by the Property Owners Association to make the lower rule band a firm limit due to economic impacts to the Town that would be a consequence if all whitewater releases were eliminated. The Town also noted the benefit of TERs to their economy, as they note that the Town has become a “serious fishing destination being discovered by fishing enthusiasts from all over further contributing to our visitor base.”

Since the permit has improved lake recreation opportunities by maintaining higher late season lake levels, with certain releases still allowed when LRB elevations are reached, MDE does not agree with the request to make all releases contingent on LRB elevations. MDE believes that doing so would be harmful to the other objectives of the permit, namely enhancing whitewater recreation and enhancing the temperature of the Youghiogheny River for brown and rainbow trout and ensuring continued power generation. MDE supports the continuation of the permit conditions that allow for TER releases and for a reduced whitewater recreation schedule if LRB elevations are met.

Comment: A commenter requested a reevaluation of the Lower Rule Band due to areas in coves which have lost up to 2 feet in depth due to sedimentation. The commenter also asked during the public informational meeting an explanation on how the Lower Rule Band was established, and if the Lower Rule Band was a significant driver in the management of the lake.

MDE Response: Sediment accumulation since the reservoir creation (1925) in the various coves have been documented in previous studies. Cove sedimentation impairs recreation in certain areas. The Deep Creek Watershed Management Plan recognizes the importance of the issue of cove sedimentation. Goals of the Deep Creek Watershed Management Plan are to better understand sediment sources in the lake, develop an erosion and sediment control plan, and improve lake shoreline erosion protection measures and permitting. In addition, the Watershed Plan has strategies for exploring dredging, allowing dock extensions, and educating potential buyers. These strategies need to be continually pursued for addressing the impacts of sedimentation.

At the final stakeholder meeting on April 25, 2019, MDE polled the stakeholders to find out their support for maintaining the existing Rule Band elevations. The stakeholders were unanimous in their support of maintaining the existing Rule Band elevations. MDE supports that consensus. Thus, MDE did not conduct a reevaluation of the LRB during this permit application review.

The Rule Band was developed with the expectation of meeting the multiple project objectives of the permit, including lake recreation. This Penelec Support Document (1994 Revision) indicates that the operating rules (which include the Rule Band) were developed in consultation with the MDNR and public interest groups to best meet the seven project objectives. Insight into the factors that impacted the Rule Band elevations are discussed in the document. A computer model was used to evaluate alternate strategies. High water levels entering the recreation season are desirable as this provides the greatest opportunity for meeting lake recreation goals. The Upper Rule Band limit of 2461 was to protect against shoreline erosion. The decline in the Rule Band lake elevations through the summer is a consequence of the anticipated impact of authorized use of water for whitewater recreation and temperature enhancement releases, along with the other losses (e.g. evaporation and wicket gate losses) exceeding normal summer time inflow to the Lake. The document notes that the rate of lake level decline during the summer should not be more than 1.25 feet per month to permit adjustment of boat docks. A goal of maintaining a water levels elevation 2458 through mid-October is identified. Low lake levels in the winter are consistent with preventing excessive ice loading on the dam. If lake levels reach the LRB, the consequential loss of two out of three scheduled whitewater releases helps to slow the rate of lake level decline, contributing to the management of lake levels.

Comments Concerning Temperature Enhancement Releases (TERs)

Comments opposed to and requesting review of the existing TERs

MDE received almost 30 comments from the public opposing TERs. During the public informational meeting the late president of the POA clarified that the intent of the comments from the POA was to request a more thorough review of the TERs and not to oppose the TERs.

Specific reasons that some commenters identified as a basis for their objections to the existing TERs were:

- (1) That the need for and benefit of TERs had not been properly documented.
- (2) That the temperatures in the Youghiogheny River are too warm to support a native trout habitat.
- (3) That the fishery is not used enough to justify the dedication of Lake water for that purpose.
- (4) That the amount of water used to support the artificial population of trout is excessive, and there should be ways to cool the fish that use less water.
- (5) That the TERs are not subject to the Lower Rule Band, and that certain lake front property owners loose boating access at late season Lower Rule Band elevations (approximately 200 by end of August – 350 by end of October, of approximately 2200 dock slips) The location of these impacted docks are concentrated in coves south of Glendale Road.

Comments in support of the existing TERs

MDE received over 50 comments from the public in support of the TERs. Reasons for support were that the TERs sustained the trout fishery and therefore the commenters benefited or the community benefited by:

- (1) Making frequent personal use and enjoyment of the Youghiogheny trout fishery for years – some for decades.
- (2) Enjoying the high quality of the fishery (size and abundance of the trout), identified as world class, a treasured and irreplaceable resource, and the economic benefit of high quality recreation that the fishery provides the region.
- (3) Being able to, as fishing guides, take clients, including beginners and vacationers from Deep Creek Lake to the Youghiogheny.
- (4) Establishing their residency in the County because of the fishery.
- (5) Their frequent travel to and expenditure of resources in Garrett County even though they were from out of state or out of County.
- (6) That there was a positive economic benefit to the Town of Friendsville because of increased visitors in Friendsville were attracted to the trout fishery supported by the releases.
- (7) That the viable fishery was a positive benefit to the youth of Friendsville, by providing a positive recreational opportunity.

Comments opposing and requesting review of TERs: (1) That the need for and benefit of TERs had not been properly documented. (2) That the temperatures in the Youghiogheny River are too warm to support a native trout habitat.

MDE Response: The Penelec Support Document (1994 Revision) explains the basis for the TERs. The document states (see pages 3-143 and 3-144) that “brown trout are the most important coldwater gamefish in the Youghiogheny River from the Deep Creek Station

tailrace to Friendsville, MD. Optimal brown trout habitat is characterized by cool to cold water, rock substrates providing sufficient cover, and riffle-run habitat in combination of with areas of slow, deep water (Raleigh, et. al. 1986). Extreme water temperatures are probably the most important limiting factor to brown trout (Raleigh et. al. 1986). The upper limiting temperature to brown trout is approximately 27 degrees C, above which viable stream populations cannot be maintained (Needham 1969). Other sources cited by Brungs and Jones (1977) list a temperature of 26 degrees C as the upper incipient lethal temperature for adults acclimated to 20 degrees C. Optimal water temperature for brown trout are between 12 and 22 degrees C. " ... " Water temperature in the mainstem during the summer may significantly limit habitat for coldwater species such as trout. Water temperatures in the range of 26 to 29.5 degrees C have been recorded during periods of warm or hot air temperature. During these periods of warm mainstem water temperature, discharges (primarily leakage flows) from the Deep Creek powerhouse have been beneficial in providing relatively lower water temperatures in the tailrace and for some distance downstream in the mainstem. This occurs because the project withdraws water from the deeper areas of the lake where water temperatures are normally cooler than river temperatures during the summer period. Pavol (1989) found that during these periods of higher minimum temperatures, trout seek refuge in areas affected by the cooler water discharges from the Deep Creek Project." And on page 3-155 "In general, trout distribution throughout the mainstem Youghiogheny River during periods of high water temperatures and low streamflow are directly related to the availability of cooler water areas or refugia (Pavol 1988b). This is believed to be a major reason for the lack of wild trout and low survival of hatchery fish at sampling stations on the mainstem upstream of the confluence with Deep Creek. Releases of relatively cooler water through the Deep Creek powerhouse are likely a direct contributor to the higher numbers of trout observed in areas downstream of the project. For example, the MDNR has sampled fish populations at three sites (Swallow Falls, - 2.5 miles upstream of the project; Hoyes Run - 0.4 miles downstream; and Sang Run - 3.7 miles downstream) for several years (1987-1988). Results have shown that the highest trout densities occur at the Hoyes Run station. It is believed that this is directly related to the cooler waters discharged from the Deep Creek Project (Pavol 1989)."

While brook trout are native to Maryland's waters, brook trout have a lower temperature tolerance than brown or rainbow trout. The TERs are by design not targeting brook trout, but rather brown and rainbow trout, due to their higher thermal tolerance than brook trout.

The Penelec Support document (1994 Revision) provides the following information: brown and rainbow trout were present in the Youghiogheny River; that they were negatively impacted by periodic high temperatures; that the cool powerhouse discharges likely had a positive benefit on their greater abundance downstream of the powerhouse discharge; that there was an opportunity to periodically enhance the River temperature for brown and rainbow trout by targeted powerhouse releases; and that such releases were also beneficial

for power production (during mid day and in warm weather consistent with times peak power demands).

DNR's commitment to continuing annual in-stream surveys of trout population provide quantitative data on trout abundance and size in the Youghiogheny River downstream of the powerhouse prior to the initiation of the TER protocol and after the initiation of the TER protocol. This data provide insight on the impact of the TER protocol on the fishery. Summary data of in-stream surveys for the years 1988-1994 (prior to the implementation of the TERs) and most years between 1995 through 2017 (after the implementation of the TERs) were presented by DNR at the April 25, 2019 stakeholder meeting. Bar graphs showing the mean of the annual surveys from 1988 to 1994 from the Hoyes Run and Sang Run stations are shown as pre-TER plots in the presentation. The pre-TER surveys results are as follows: a mean trout density of 534 trout per mile; a mean trout biomass of 11 pounds per acres; and a mean of 40 quality sized trout (trout at least 12 inches in length) per mile. Bar graphs showing the mean of the annual surveys from 1995 – 2017 (except years 1996, 2003, 2004, and 2015 when flows were too high to conduct the surveys during the scheduled survey period) are shown as Post-TER in the presentation. The post-TER survey results are based on surveys conducted at Hoyes Run, Sang Run, and from 1999 through 2008 included results from Deadman's Run, which is between Hoyes Run and Sang Run. The Post-TER survey results are as follows: a mean trout density of 926 trout per mile; a mean trout biomass of 21 pounds per acre; and a mean of 119 quality sized trout per mile. To see the slides from the presentation please visit this link:

https://mde.maryland.gov/programs/Water/water_supply/Documents/Deep%20Creek%20Lake/StateholderMtgs2019/DCL-StateholderMtgNum3-Fish_2019-04-25-revised.pdf

The increases in density, biomass, and quality trout per mile are significant, almost a two fold increase in density and biomass and a three-fold increase in the number of quality trout per mile. It is not possible, however, to attribute all of the increases to just the TERs. There were multiple changes that occurred following the issuing of the new permit, which would have also served to improve the trout fishery. These are: the requirement for Penelec to maintain a new minimum stream flow of 40 cfs; the requirement for Penelec to install a new tailrace weir to improve dissolved oxygen levels of the discharge; along with the implementation of Temperature Enhancement Release protocol. In addition the DNR established a catch and return fishery in 1993 for this section of the River. As a result, all of the noted improvements in trout abundance and size cannot be attributed to just one factor. It has been documented that the TER played a critical role in improving the trout habitat because of the critical role that temperature plays on trout health and abundance and the success of TERs in reducing elevated temperatures in the River (as discussed later in this section). Because of the key role that temperature plays on trout health and survival, a direct consequence of averting critically unhealthy or lethal temperatures is increased survival, leading to increases in trout abundance and size.

Data is available from published studies and from observation regarding temperature impacts on brown and rainbow trout. DNR provided several additional sources on information (than those cited in the Penelec Support Document(1994 Revision) and quoted on pages 12 and 13 above) regarding temperature impacts on brown and rainbow trout. These were provided to MDE in an email dated October 8, 2019. DNR noted a study by Kaya (1977) who reported that brown and rainbow trout in the Firehole River in Wyoming sought refuge in cold water tributaries when the river temperature reached 25 degrees C. DNR also pointed to a study by Lee and Rinne (1980) who documented brown trout tolerance limited to a maximum daily temperature range from 21 to 27 degrees C. DNR fishery staff observed trout in the Youghiogheny congregating at the mouth of several different cold water tributaries on different occasions (an unnamed tributary at Swallow Falls, Deep Creek, Hoyes Run, Deadman's Cave Spring, and Sang Run) when the temperature in the mainstem of the Youghiogheny were 27 and 27.5 degrees C.

The October 8, 2019 email also pointed out that there was a drastic decline in trout population in DNR's fall 2005 survey sample sites (at Hoyes Run and Sang Run) when compared to previous post permit years. During 2005 the hydroelectric plant did not properly follow the temperature protocol, and there were five times when temperatures at Sang Run were above 29 degrees lasted for more than eight hours in duration.

At the December 4 TER workgroup meeting Dr. Robert Hildebrand of the Appalachian Laboratory provided information on how temperature impacts trout health and behavior. His presentation indicated that the thermal limit (incipient lethal limit) for brown trout to be about 26 degrees C, and the thermal limit (incipient lethal limit) for rainbow trout to be between 25 and 26 degrees.

Scientific observations show that river water temperature is a key factor in impacting trout health and abundance. Conducting releases so that the Youghiogheny River does not exceed 25 degrees C is not to provide optimum health for brown and rainbow trout, but is intended to avoid significant mortality. Keeping the temperature at or below this threshold on the periodic hot days, will contribute to a healthy fishery by enhancing brown and rainbow survival so that the trout can grow and flourish throughout the remainder of the year.

Temperature data collected in the Youghiogheny River both upstream and downstream of the powerhouse discharge was evaluated on behalf of DNR by Versar, Inc. Versar presented a summary of the results of their analysis of the June through August Youghiogheny River instream temperature data collected over a 24 year period, from 1995 through 2018 to the TER workgroup on August 1, 2019. Slides from that presentation can be found here: https://mde.maryland.gov/programs/Water/water_supply/Documents/Deep%20Creek%20Lake/DC L-TER_WorkgroupMtgVersarPres2019-08-01.pdf. Versar calculated a 92% reduction in the time that the River below the powerhouse would have exceeded the 25 degree C threshold, but did not because of powerhouse releases. MDE sought additional explanation on the basis

for the 92% reduction in time from DNR/Versar and the contribution that could be attributed to TERs versus other releases. Versar informed MDE that since the August 1, 2019 presentation they had included data from 2019 and took a more detailed evaluation of the temperature data. Versar informed MDE that the total hours of River temperature above 25 degrees at the upstream Swallow Falls location during this 25 year period from June through August was 5348 hours. There are a total of 55,200 hours during June through August for the 25 year period. Thus the river temperatures upstream of the powerhouse exceeded 25 degrees C for approximately 9.7% of the time during these months for the 25 years. At the downstream Sang Run location the number of hours in excess of 25 degrees over the same period was 450 hours, which equates to exceeding 25 degrees 0.82% of the time for the three months for the 25 year period. The reduction in time from 5348 hours to 450 hours represents a 91.6% reduction in time. Versar further informed MDE that 55% of the reduction occurred on TER days, 37% of the reduction occurred on whitewater release days, 5% of the reductions on days when there were releases for power only and 3% of the reductions on days without any release.

MDE conclusion regarding items (1) and (2) The need for TERs and the benefits of TERs in enhancing the trout habitat in the Youghiogheny River downstream of the powerhouse discharge to Sang Run have been demonstrated. The presence of trout in the Youghiogheny River prior to the flow, DO and temperature improvements from the permit have been documented. The amount of acceptable habitat in the Youghiogheny River for brown and rainbow trout downstream of the tailrace would be periodically very limited by high temperatures, but for the releases from the Deep Creek hydroelectric station. The operation of the hydroelectric station in accordance with the permit conditions for TER releases has significantly reduced the number of hours that the Youghiogheny River between the tailrace and Sang Run was in excess of 25 degrees C. These changes have contributed to significant increases in trout abundance and size as documented by ongoing annual in-stream trout surveys.

Comment opposing and requesting review of TERs: (3) That the fishery is not used enough to justify the dedication of lake water for that purpose.

MDE Response: MDE does not agree with that assertion. MDE has not established a minimum threshold of use for justification of the TERs. There is a substantial benefit to the State's natural resources from the release. TERs have been an important project purpose for more than two decades. TERs provide important benefits for power generation. The testimony from many commenters expressed a high level of appreciation for the quality of the fishery and their regular and ongoing use of the fishery. Commenters cited the fishery as their reason for purchasing property in Garrett County. Other commenters testified of multiple trips every year to fish the Youghiogheny. The Town of Friendsville commented on the benefit of the fishery to their community. These comments are in opposition to the

claim that the fishery is not used enough. (see summary items (1) –(7) page 12 for comments in support of the TERs).

DNR, in conjunction with Morgan State University PEARL Center presented the results of a statewide non-tidal Angler preference survey at the April 25, 2019 stakeholder meeting. The survey was conducted by Morgan State University in cooperation with Fishing and Boating Services, Freshwater Fisheries Program, DNR in 2016, concerning 2015 fishing activity. From this survey DNR estimated about 19,800 fishing trips to the Youghiogheny River were made in 2015, with 17,600 specifically targeting trout. DNR projects an economic impact of those trips to be 3.2 million dollars. Slides from that presentation can be found here.

https://mde.maryland.gov/programs/Water/water_supply/Pages/DeepCreekLakeRenewalProcessForm09.aspx

MDE conclusion regarding item (3). There is widespread use and support for the trout fishery in the Youghiogheny. The availability of the fishery contributes to the quality of life for many. There are economic benefits to the local economy. TERs have the additional public benefit of power production. There are natural resource benefits in contributing toward improved fish habitat, and the use of TERs are in the general public interest. The fishery has public access and is open to the general public.

Comments opposing and requesting review of TERs: (4) That the amount of water used to support the artificial population of trout is excessive, and there should be ways to cool the fish that use less water. (5) That the TERs are not subject to the Lower Rule Band, and that certain lake front property owners lose boating access at late season Lower Rule Band elevations (approximately 200 by end of August – 350 by end of October, of approximately 2200 dock slips)

MDE Response: Prior to the implementation of the TER protocol, alternative means for reducing temperatures were considered. These are described starting on page 4-31 of the Penelec Support Document (1994 Revision). Various generation release scenarios were considered by Penelec, and the testing in 1991 demonstrated that a two hour two turbine discharge in the morning was effective in achieving the desired results, in contrast to other options. Temperature data collected during those 1991 tests was presented to the TER workgroup on August 1 by Versar. The link to that presentation is on page 15. Using a bypass flow rate of 100 cfs, was also considered for temperature enhancement, but determined to have significant negative impacts on energy generation, a high capital cost, a much longer run time (consequently only marginal water saving) and loss of a co-benefit of whitewater recreation. There is also the likelihood that a lower release rate would result in more unnecessary releases due to the greater travel time at the lower release rate (predictions for releases would need to start earlier in the day). The effectiveness of the TER

protocol in avoiding unnecessary releases was documented by Versar and also presented on August 1 to the TER workgroup. Versar found that on average over the 24 years, the TER protocol predicted the need for a release an additional 1.4 times per year, when it would not have been needed to keep the river temperature below 25 degrees C. This is equivalent to less than 0.5 inch of lake level each year.

Chapter 5 (see page 5-4) of the Penelec Support Document (1994 Revision) states the following "Water temperature enhancement through project operation permits whitewater boating and power generation. Even during severe temperature conditions such as occurred in 1991, lake levels could be maintained above 2458 through the end of September with a water temperature threshold of 25 degrees C. Trying to keep water temperature below 22 degrees C [the optimum upper temperature for brown trout] would require a substantial increase in the number and duration of releases and lower lake levels." Thus the selection of the release regime and target temperature was made to make efficient use of water, achieve multiple benefits and not adversely impact lake recreation.

In order to evaluate the TER contribution to lake level changes MDE calculated the amount of water required to comply with the TER requirements. MDE reviewed data from the annual reports for the period from 2006 to 2018. Any TER releases prior to 2011 that occurred on the scheduled whitewater release days established in the 2007 permit, were not included, since in 2011, the permit was modified to eliminate the potential for dual TER and whitewater releases on the same day. With the exclusions noted, MDE totaled the hours of TER releases each year for the period from 2006 to 2018. The total hours of TER releases each year (from June to August) were converted to feet of lake level (using a generation rate of 630 cubic feet per second). The average impact due to TERs on lake levels for these 13 years was equivalent to 0.46 feet. The maximum usage of lake water for TERs during any one year was equivalent to 1.08 feet. The minimum use of lake water for TER requirements was equivalent to 0.14 feet. The typical (median) year for TERs required 0.32 feet.

In order to assess the impact of TERs on lake levels, the typical lake level elevation starting on June 1 was considered. Normally on June 1, lake levels are close to the Upper Rule Band elevation of 2461 feet. Subtracting 1.08 feet (the year with a very high TER water demand) from elevation 2461 feet results in a lake elevation of 2459.92 feet, almost two(2) feet above end of August Lower Rule Band elevation of 2458 feet. Even if lake levels on June 1 were near the Lower Rule Band level of 2460 feet (as what happened in one year - 1999), the impact of a very high TER year requirement would result in lake levels almost a foot above elevation 2458 feet (end of August LRB level). In years with a typical TER requirement (0.32 feet), the TER impact on lake level changes is even less.

Modeling and data have shown that the 25 degree C target of the TERs is compatible with lake recreation. The Penelec Support Document (1994 Revision) modeling efforts that led to the Rule Band elevations, incorporated anticipated TER releases that were not subject to

the Rule Band elevations. To quote “The threshold levels (i.e. lower rule band) were developed to permit releases for downstream water temperature enhancement and minimum downstream flows to be continued. Therefore, as the summer progresses, the lower rule band continuously decreases. During the thirty year simulation of project operations, summer and fall lake levels stayed within acceptable levels during most years, and above historical levels. During years with very low flows, lake levels will not be at optimum levels, but will be at acceptable levels for the majority of lake users.”

In order for the temperature enhancement of the Youghiogheny River from the tailrace to Sang Run to be effective in supporting brown and rainbow trout, continuous avoidance of temperatures above 25 degrees C is essential. For this reason, it is also not appropriate to condition a TER on the lake level.

MDE Conclusion regarding items (4) and (5) The method of the TER releases and the use of the protocol make efficient use of available water to achieve the purpose of enhancing the water temperature of the Youghiogheny River for brown and rainbow trout, when compared to other alternatives. TERs achieve two additional beneficial uses (power production and opportunity for whitewater recreation for two hour release events). There are very few unnecessary releases. The TERs are independent of the lower rule band, as continuity of protecting the fishery is critical for maintaining the population. The permit will continue to require TER releases independent of the lake level as it necessary for sustaining the trout population, is non wasteful, has multiple benefits, was modeled to be independent of the Lower Rule Band since its inception, has only modest impacts on lake levels and has been an established practice following the issuing of the first Water Appropriation and Use Permit in 1994.

Proposed Changes to the TERs by the Department of Natural Resources (DNR)

The Department of Natural Resources Freshwater Fisheries Program proposed four changes to the Temperature Enhancement Releases for the Brookfield permit during the stakeholder meetings and subsequent TER workgroup meetings. The requested changes are as follows:

Change the time of releases for releases predicted at 11:00 am to start as soon as practicable rather than at 12:30 pm.

For Brookfield to extend the period for running the temperature release protocol from June through August 31 until September 15. (As noted in the Background – Previous Permit section, the permit now requires Brookfield to run the protocol from June 1 through August 31).

To increase the trigger flow threshold for running the protocol from 150 cubic feet per second (cfs) to 180 cfs, as measured at the USGS gage on the Youghiogheny River in

Oakland. The protocol model is only run when River flows are below the designated threshold.

To extend the required monitoring Youghiogheny River temperature at Sang Run to include the period from May 15-May 31.

The following summarizes the comments received in opposition to each of the four DNR proposals.

There were no comments that specifically opposed changing the time of release to 11:30 am.

There were many comments opposing extending the TERs into September. Reasons commenters gave for opposition to the change are:

- a) Lack of quantitative data supporting the need for extending the period into September.
- b) The potential that the extension would require an additional 8-11 inches of lake level thus substantially impacting lake property owners.
- c) That TER releases are not subject to the Lower Rule Band, and thus negatively impact lake recreation and whitewater rafting.
- d) That there is little use of the fishery along the Youghiogheny River to justify the releases.
- e) That the Youghiogheny River was too warm to support a native trout habitat.

There was one comment specifically opposing the change of the flow threshold as it seemed excessive, with potential harm to lake users and the whitewater community.

There were no comments opposing temperature monitoring from May 15-May 31.

The following summarizes comments received in support of the DNR proposals.

Most every commenter that wrote in support of the existing TERs also wrote in support of DNR's proposed modifications to the TERs. One commenter supporting DNR's proposed changes urged MDE to adopt the changes due to Code of Federal Regulation standards adopted under the Clean Water Act (federal regulation 40 CFR § 131.12(a)) which at a minimum require the maintenance and protection of existing instream uses. One commenter indicated that there may be alternatives for dock owners to address low water impacts (extending docks in wide coves). This commenter also indicated that not all boats require the amount of draft used to document the impact to dock owners. Several property owners on Deep Creek Lake supported the continued protection of the

fishery as well worth the impact on lake levels. A few commenters noted that the impact of lowered lake levels were temporary, at the end of the season, and affecting only a small percentage of lake property owners, while not maintaining a protective temperature regime would result in the irrevocable loss of trout. A commenter also noted the importance of extending the temperature releases as good stewardship of our natural surroundings.

Proposal: DNR requested to change the timing of releases for 11:00 am prediction to as soon as practicable after the determination that a release was needed.

MDE Response: DNR's consultant (Versar) reported to stakeholders that they had reviewed all of the temperature data collected at Sang Run for the months of June through August for the years 1995-2018. They reported that 30% of the events with temperatures in excess of 25 degrees Celsius were due to the fact that TERs determined to be needed at 11:00 am were delayed by the protocol to start at 12:30. This information was presented to the stakeholders at the March 28, 2019 stakeholder meeting and can be found on MDE's website here:

https://mde.maryland.gov/programs/Water/water_supply/Pages/DeepCreekLakeRenewalProcessFor09.aspx.

In follow-up to the presentation, Brookfield informed the stakeholder group that they could go through all the necessary steps in order to safely make a release within a half hour of the 11:00 am determination. The stakeholder group endorsed the proposed change in time to 11:30 am at the April 25, 2019 stakeholder meeting.

MDE agrees with the changing the protocol to specify a release time of 11:30 when TERs are determined to be needed at 11:00 am. The revised protocol will be incorporated by reference to the new permit.

Proposal: DNR requested to extend the running of the TER protocol from August 31 to September 15 each year.

Comment: Quantitative data was not provided to support DNR's request to extend the TERs into September.

MDE Response: As outlined in MDE's discussion on comments (1) and (2) in opposition to and requesting review of the TER requirements (see pages 12-16 above), there is quantitative data on the temperature needs of brown and rainbow trout. There is also quantitative data on temperatures in the Youghiogheny River.

DNR's consultant (Versar) analyzed temperature data collected at Sang Run from 1995 to 2018 to determine when river temperatures exceeded 25 degrees C after August 31.

The first date after August 31 on which the River temperature was above 25 degrees C was on September 2, 2008. Versar documented ten (10) additional days from September 1, 2010 until September 6, 2018 for a total of 11 days during which temperatures exceeded 25 degrees C. There was no more than three (3) days in any one year and the latest date of an exceedance in any September was on the 8th of September. The date of each exceedance, the time of day when each exceedance began, the time of the maximum temperature, the maximum temperature that was reached, the duration of each exceedance in hours, the corresponding lake elevation for that date, and the lake level with respect to the Lower Rule Band elevations were all documented. Only on two of the 11 days (September 1 and 2 of 2010) were lake levels below the LRB levels, for the other 9 days lake levels were substantially above the Lower Rule Band levels. A summary of the data was provided to stakeholders at the March 28, 2019 stakeholder meeting. The data supports the need to extend the TER into September in order to enhance the temperature between the project tailrace and Sang Run for brown and rainbow trout. There is quantitative data in support of the DNR request to extend TER releases into September.

Comment: Extending TERs into September would require an additional 8-11 inches of drawdown thus substantially impacting lake property owners. Since TER releases are not subject to the Lower Rule Band they negatively impacting lake recreation and whitewater rafting.

MDE Response: The data does not support the contention that extending the releases until September 15 would require an additional 8-11 inches of lake level, thus substantially impacting lake property owners. Versar calculated that three (3) additional releases (the most that occurred in any one year after September 1) would require at most an additional inch of lake level. This calculation is based on assuming that each of the three (3) September releases were for two (2) hours. The consultant's evaluation also stated that "Since these exceedances were all in the late afternoon (the earliest at 2 pm) it is likely that only a 1-hour release would have been called for by the TER protocol." DNR noted that due to September scheduled whitewater releases (typically six days during this time – two sets of Friday, Saturday and Mondays) that the protocol would only need to be run on the remaining days during the two week period. MDE concurs that late afternoon exceedances would only require a one-hour release. Therefore, the most realistic estimate of the extension of TERs in September on lake levels from the existing data would be an additional 0.5 inch.

Adding 0.5 inches (0.04 feet) to the maximum previous TER need 1.08 feet (see page 18 above) results in a maximum anticipated TER impact on lake levels of 1.12 feet. A drop in lake level of 1.12 feet from June 1 – September 15 would drop lake levels from 2461 feet to 2459.88 feet or if the June 1 lake levels were at the Lower Rule Band elevation of 2460 feet on June 1, to 2458.88 feet. In a typical (median) year the total lake level

decline for TERs from June 1 to September 15 would be about 0.36 feet (0.32 plus 0.04) or even less of an impact on lake levels.

As to the potential for TER releases to negatively impact whitewater rafting, there were no comments from the whitewater stakeholders indicating this concern. The Town of Friendsville, in fact disputed this comment. American Whitewater submitted comments in favor of extending TERs into September.

The data does not show that extending TERs into September would cause an additional 8-11 inches or drawdown or cause unreasonable impacts to lake recreational use or whitewater rafting.

Comment: There was little use of the fishery along the Youghiogheny River and that the Youghiogheny River was too warm to support a native trout habitat to justify extending the TER releases into September.

MDE Response: As noted previously MDE does not concur with these comments. See (pages 12-17).

MDE Conclusion: The extension of TERs into September will address temperatures in excess of 25 degrees C, and thereby helping to ensure the continuation of the brown and rainbow trout fishery. The predicted impact from extending TERs into September on lake levels is very minor, perhaps as much as 1 inch, but more likely being 0.5 inches. All TERs have the additional benefit of power production. MDE concurs with the DNR request to extend running the TER protocol to September 15th, independent of the lake levels.

Proposal: DNR requested to modify the flow threshold from 150 cfs to 180 cfs for the Youghiogheny River flow at Oakland. The proposal would direct Brookfield to run the protocol for flows less than 180 cfs.

Comment: This proposed change in the flow threshold seemed excessive, with potential harm to lake users and the whitewater community.

MDE Response: The flow threshold in permit version GA1992S009(08), (above which the TER protocol is not implemented) is 150 cubic feet per second (cfs) as measured at the USGS gage on the Youghiogheny River in Oakland. That threshold was established in the 2009 TER protocol, (an increase from the previous 100 cfs cap) based on an assessment of the effectiveness of the protocol. DNR's consultant (Versar) reviewed all days when a temperature exceedance had occurred since 2010, to see if any occurred on days when the flow trigger was above 150 cfs. They noted five (5) exceedances on such days over the course of the nine (9) years. A memo documented when these

events occurred, including the maximum temperature at Sang Run that was recorded on each date and the morning Youghiogheny River flow at Oakland was provided to MDE and the TER workgroup. Four of the dates are in July and one was in June. Lake elevations on these dates were all above the Lower Rule Band elevations. The highest morning flow on any of these five(5) days was 180 cfs. The memo indicates that because the temperatures were all less than 26 degrees C, the likely response to the protocol being run, would be to call for a one hour release. A one hour release is equivalent to one sixth of an inch of lake level. Thus changing the flow threshold would have very little impact to lake levels. To view the memo, please see this link:

https://mde.maryland.gov/programs/Water/water_supply/Documents/Deep%20Creek%20Lake/DCL-TER-DNRPowerPlantMemoReProposedChangestoTER-2019-08-19.pdf.

MDE concurs with the requested change in the flow threshold.

Proposal: DNR requested to require Brookfield to monitor temperatures from May 15-May 31.

MDE response: There is no additional monitoring equipment required to implement this change. The impact on Brookfield is to install the same monitoring probe(s) several weeks earlier in the spring. MDE concurs with the requested change for earlier season temperature monitoring.

General Comment on DNR's proposals: That regulations promulgated under the Clean Water Act (40 CFR § 131.12(a)) which asserts that "at a minimum .. Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." For this reason TU (Trout Unlimited) urges MDE to accept DNR's recommendations for the permit renewal.

MDE response: MDE believes acceptance of DNR' recommendations is consistent with its statutory obligations to protect water resources in the best interest of the people, and fully within its authority for conditioning Water Appropriation and Use Permits to condition a permit for resource management purposes.

Comments concerning Whitewater Releases

Representatives of whitewater community made several comments on the permit specific to the needs and desires of the whitewater community, both the commercial outfitters and the recreational boaters. These comments and our responses follow. More than 50 comments were submitted in support of the changes proposed by the whitewater

community and the continuation of the permit condition allowing a reduced whitewater schedule when lake levels reach the lower rule band.

Comment: The whitewater community has proposed a modification for certain scheduled whitewater releases (WWR) in April. They requested that the day of scheduled releases in April change from Fridays to Saturdays. MDE received over 50 emails in support of the proposed change, with one email requesting that the day not be changed.

MDE Response: During the April 25, 2019 stakeholder meeting this proposal received full consensus, including no objections from Brookfield. MDE concurs with the request.

Comment: The whitewater community has requested that all Temperature Enhancement Releases (TERs) between 11 AM and 3 PM be of two-hour duration to enable them to be of multi-purpose for rafting and kayaking.

MDE Response: The existing protocol for TERs requires that maximum daily river temperatures be predicted using equations provided in the protocol at 7:00 AM, 9:00 AM, 11:00 AM, 12:00 Noon, 2:00 PM, and 3:00 PM during the months of June, July and August. The predicted temperature at each of these times is compared with a threshold temperature for that time. A two-hour release is made when a prediction made at 7:00 AM, 9:00 AM, or 11:00 AM exceeds the corresponding threshold temperature. A one-hour release is made when a prediction made at Noon, 2:00 PM or 3:00 PM exceeds the corresponding threshold temperature.

It was determined from previous testing (as documented in the Penelec Support Document (1994 Revision)) that releases resulting from morning predictions of two hours were necessary to prevent river temperatures from exceeding 25 degrees C. For releases determined to be necessary during the 12:00 Noon, 2:00 PM, or 3:00 PM evaluations, only a one-hour release is required to prevent river temperatures from exceeding 25 degrees C.

A one-hour release has less impact on lake levels than a two-hour release. Since the primary purpose of the TERs is for the fishery, and there are many dedicated whitewater releases already scheduled and additional two-hour TERs also available, the commenter has not provided a compelling reason to make the requested change. MDE notes that the protocol designation for one-hour TERs has not changed since the first permit.

MDE also recognizes that changing the release time from 12:30 to 11:30 for the 11:00 AM prediction (as discussed in the TER section) will mean that going forward two hour TERs will be at 11:00 am or 11:30. MDE does not concur with the request to make all TERs between 11:00 AM and 3:00 PM for a two-hour duration.

Comment: The whitewater community have proposed requiring that, when making discretionary power releases during the whitewater season (April 15 thru October 15) and the flow at USGS stream gage 03076100 (Youghiogheny River at Hoyes, MD is less than 300 cfs, Brookfield would have to start any such release with two hours at full gate. The whitewater community noted that variable generation releases are a newer practice and as a result they are not able to take advantage of the releases under these flow conditions (due to safety conditions), that they were formerly able to.

MDE Response: Representatives of the whitewater community have explained that they require a minimum of 600 cfs at Hoyes Run for two hours in order for a release to be usable for whitewater recreation. Since natural flows on the river, particularly later in the recreational season, are often too low for the variable regulatory releases to provide the necessary flow for a safe whitewater experience, representatives of the whitewater community note that they are losing the opportunity for whitewater recreation they have historically enjoyed from discretionary releases.

Under variable releases Brookfield allows the grid operator, PJM Interconnect LLC, to control the rate of electricity output to match the electricity demand of the grid. Thus, the rate of water release will vary during periods of variable generation. Brookfield has informed MDE that variable releases are an important part of their operation because they provide a higher power price than straight generation. Brookfield forecasts that in general there will be greater opportunity for variable generation into the future. Brookfield reported that the number of variable discretionary releases when the Youghiogheny River is less than 300 cfs during each recreational season has varied considerably from year to year over the past five years. They reported 0, 3, 6, 17 and 4 events from 2015 through 2019. Brookfield indicated their opposition to the request. They cited negative financial impacts, and the high number of scheduled whitewater releases already provided as the basis for their opposition.

MDE believes that both parties have valid points in support of their position and that a compromise is the best path forward. The permit will therefore require that half of the discretionary releases (when the River flow is less than 300 cfs at Hoyes) during a recreation season (April 15 – October 15) will be for two hours of straight generation from both turbines. Any discretionary release still needs to follow the requirements of Condition 14.

Comment: The whitewater community opposed any change to the permit that would eliminate all releases for whitewater recreation when the lake level is below the Lower Rule Band. Commercial rafters indicated that the provision which allows one schedule release per weekend (rather than the normal three) as long as the lake level is within one foot of the Lower Rule Band, keeps the rafting industry in business during extreme drought years.

During the public informational hearing a kayaker expressed the importance of knowing that releases will be made.

MDE Response: The rationale to completely eliminate all scheduled whitewater releases if the Lower Rule Band is reached is not consistent with the multiple project objectives of the permit, nor does it recognize that early and mid-season Lower Rule Band elevations are not impacting lake recreation opportunities. Reducing the number of allowed whitewater releases by two thirds when the LRB is reached is a significant impact on whitewater recreation and the rafting industry, but does preserve one event and recognizes the multiple objectives of the permit. The reduction in whitewater releases will slow down the rate of decline in lake levels, thereby helping lake recreation, but will still allow some project generation, and still allow one whitewater event per weekend period, allowing the whitewater recreational industry to stay in business. MDE agrees that the permit condition allowing a reduced whitewater schedule if lake levels are not more than one foot lower than the Lower Rule Band should continue.

Comments from the Public Informational Hearing

Questions and requests received during the public information hearing not addressed in the subjects above are responded to here.

Comment: A commenter wished to know if the Scenic and Wild Review Board had specifically weighed in on permit issues. Another commenter requested broader stakeholder representation to include more downstream entities and a second public meeting to review a draft permit.

Response: MDE believes that the stakeholder group represented a wide spectrum of interests, including many downstream interests. MDE welcomes recommendations from the Youghiogheny local Scenic and Wild River Advisory Board or other representative organizations to be part of a stakeholder process in future permit evaluations. The public participation process for Water Appropriation and Use Permits (per Sections §§ 5-204 and 5-506 of the Environment Article) does not include holding a second public forum for reviewing a draft permit.

Comment: A commenter requested that the wet side of the dam (i.e. the Lake) be identified as a use in the permit.

Response: All Maryland Water Appropriation and Use permits identify the uses for which the withdrawal of water will serve, not the uses of the water body from which the withdrawal occurs. As noted throughout this document a key purpose of the permit is to

support the recreational use of Deep Creek Lake. The source of the water (i.e. Deep Creek Lake) is recognized in the permit as a separate permit condition.

Comment: A commenter expressed concern about the potential for dam releases to impact flooding in Friendsville, under high river flows.

Response: The permit does not address this specific issue. The permit does emphasize the need to protect the dam from uncontrolled spillway releases, which protects downstream Friendsville from catastrophic releases.

Comments from Friends of Deep Creek Lake

The Friends of Deep Creek Lake (FoDCL) provided many pages of comments on the permit application. FoDCL stated their opposition to the issuance of any Water Appropriation and Use Permit until the State has remedied five areas. The five areas are discussed below.

Comment: MDE has failed to resolve the apparent conflict in the relevant laws governing Deep Creek Lake management and water appropriation. The FoDCL cite a section of MDE's Water Appropriation and Use regulations concerning the reasonableness criteria and a section of DNR's regulations concerning the management of Deep Creek Lake. The FoDCL request a finding from the Office of the Attorney General if there is a conflict in State laws and code governing Deep Creek Lake management.

Response: MDE does not agree that there is a conflict between laws governing Deep Creek Lake management and water appropriation. Maryland's water appropriation and use laws are found in Subtitle 5 of Title 5 of the Environment Article. Section § 5-501 states that "In order to conserve, protect and use water resources of the State with the best interests of the people of Maryland, it is the policy of the State to control, so far as feasible appropriation or use of surface waters and groundwaters of the State." Section § 5-502 (a) requires a person to obtain a permit from MDE to appropriate and use water (with exclusions noted in § 5-502(b)) and provide satisfactory proof that the proposed withdrawal will not jeopardize the State's natural resources. Section § 5-507 instructs MDE to weigh all public advantages and disadvantages and make all appropriate investigations before acting on a permit application. Section § 5-507 (b) provides the authority to condition a permit concerning the character, amount, means, and manner of the appropriation or use to insure the safety and welfare of the people of the State.

Maryland's regulations regarding water appropriation or use are found in Chapter 06 of Subtitle 17 of Title 26 (COMAR 26.17.06). Within paragraph A of COMAR 26.17.06.02 it reads "...the Department is authorized to control appropriation or use of surface and ground waters. This control provides for the greatest possible use of water in the State, while protecting the State's valuable water supply resources from mismanagement, abuse, or overuse. The State's water supply resources included watercourses, lakes, aquifers and tidal areas, and other bodies of water in the State. Private property owners have the right to make reasonable use of the waters of the State which cross or are adjacent to their land. For the benefit of the public the Department acts as the State's trustee of its water resources." Paragraph B of COMAR 26.17.06.02 states that "Maryland follows the reasonable use doctrine to determine a person's right to appropriate or use surface water or ground water. A ground water appropriation or use permit or a surface water appropriation or use permit issued by the Department authorizes the permittee to make a reasonable use of the waters of the State without unreasonable interference with other persons also attempting to make a reasonable use of water. A permittee may not unreasonably harm the water resources of the State."

MDE's laws and regulations for water appropriation and use govern the issuance and terms and conditions of this permit. DNR's regulations for Deep Creek Lake are aimed at preventing overuse of the lake by recreational users, creating a permitting method whereby DNR can limit recreational activities on and around the lake. DNR's regulations concerning Deep Creek Lake in COMAR 08.08.01.01.B explain that the State as owner of the Lake, land under the Lake and buffer strip allows the public and surrounding landowners the use the waters of the Lake, but only as a matter of privilege. The full text of paragraph B is "The State of Maryland owns Deep Creek Lake in Garrett County, Maryland including the land under the lake and the buffer strip. The Department has allowed and will allow the public and surrounding landowners to use, and in certain instances to occupy, the waters of the lake, and land beneath the lake, and the buffer strip, but only as a matter of privilege. Permanent or long-term property interests in these properties are not intended to be granted to the public or to surrounding landowners in connection with recreational use of the lake and buffer strip under this subtitle."

Maryland's Water Appropriation Regulations do envision the need to consider impacts of a withdrawal on other users and the resource and throughout the process of this application review such consideration has been given.

The FoDCL comments also reference other laws, such as the State Lake Protection and Restoration Fund Act of 2018, State Lake Aquatic Invasive Species Act of 2015 and the Clean Water Act. But the comments fail to explain in what way such laws may be in conflict with Maryland's Water Appropriation and Use laws and regulations or why a permit for the hydroelectric operation at Deep Creek would be in conflict with such laws.

Comment: MDE has failed to ensure there would be reasonable impact if the Application were approved. In fact, MDE has failed to address the unreasonable impacts of the current permit. The comments discussed the three reasonableness criteria contained in MDE's regulations (COMAR 26.17.06.06.A). FoDCL claims that the Application lacks sufficient information to facilitate the proper application of the reasonableness test. The FoDCL noted their opposition to Brookfield's request to increase the annual average withdrawal from 94,000,000 gpd to 128,000,000 gpd and claimed lack of information on the MDE website regarding this issue.

Response: MDE has reviewed the application file, the history of the permit, input from all stakeholders and established permit conditions that: ensure the reasonableness of the quantity of the allocation; and that the use of the water by Brookfield does not unreasonably impact the waters of the State or unreasonably impact other users of the waters of the State. Permits are to be issued only for a beneficial appropriation or use meeting the criteria for reasonableness (COMAR 26.17.06.06.A.). This permit follows the main goals that were established in the initial permit.

With respect to the reasonableness of the quantity, COMAR 26.17.06.06A.(1) states that "the amount of water to be appropriated is reasonable in relation to the anticipated level of use during the permit period."

The anticipated level of use during the permit period is informed by the level of previous use and an evaluation of the factors that contributed to the previous use. For the Deep Creek hydroelectric plant, there are previous years of reported use, associated precipitation data, and lake level information for each year. The hydropower operation provides the means for the volume of water that enters the lake in a year (that is not lost to evaporation) to leave the lake (water very rarely leaves the lake through the dam's emergency spillway). During wet years, more water enters the lake and consequently a higher volume of water must leave through the hydropower operation for the lake levels to stay within the operating Rule Band. Since 1994 MDE has received reported water use for the Deep Creek hydroelectric operation. A review of this data indicates that there were three years of use higher than the current average annual limit of 94,000,000 gpd that was established in the 1994 permit. The three years of highest use were in 1996 (127,900,000 gpd), 2018 (123,800,000 gpd) and 2003 (119,400,000 gpd). The precipitation data recorded in the annual reports indicate that these were also the three wettest years (approx. 79 inches in 1996, approx. 80 inches in 2018 and approx. 69 inches in 2003) of the 26 years from 1994 to 2019. The lake level data for each of the three years show that the end of year elevation was within a foot of the beginning year elevation, and within the Rule Band. It is therefore

reasonable to conclude that the higher level of use during these years is due to a greater volume of water entering the lake and not due to an arbitrary increase by the station operation. It is also reasonable to conclude that if such a year happened previously, that it could happen again and therefore it would be the maximum anticipated level of use for the permit period. Brookfield's March 26, 2019 letter to MDE, in explaining the need for the increased allocation states that the "The increase in water use is directly attributable to high precipitation and usage will vary from year to year."

MDE notes that information on previous levels of use was made available to the stakeholders (see MDE power point presentation from the February 28, 2019 stakeholder meeting on the website), as was MDE's preliminary impact analysis that briefly discusses previous water use. In addition, MDE's permit file was available for inspection during the public comment period, which contains reported water use.

The second reasonableness criteria, (see COMAR 26.17.06.06.A(2)(a)) requires that the requested appropriation or use not have an unreasonable impact on the waters of the State. FoDCL assert that MDE does not prove that there will be no unreasonable impacts on Deep Creek Lake water quality and on the water quality of the lake tributaries from the requested appropriation, nor address the potential for continued and/or increased negative impact on Deep Creek Lake water quality from the increased appropriation.

The FoDCL did not explain how the withdrawal of water would create negative lake water quality impacts. The appropriation permit ensures that the water entering Deep Creek Lake has a safe means of exit and ensures the beneficial use of the water. The Rule Bands of the water appropriation permit ensure that the lake is not depleted by the appropriation nor is the water level allowed to go too high to endanger the integrity of the dam or promote shoreline erosion. Brookfield's water use is constrained by the conditions in the permit. MDE has not identified water quality impairments for Deep Creek Lake. The appropriation of water from Deep Creek Lake does not contribute to the delivery of pollutants to Deep Creek Lake from the watershed.

The MDE reached out to DNR to obtain their input on potential lake water quality concerns associated with lake levels in Deep Creek Lake, as they have an ongoing lake and cove water quality monitoring program. They reported no water quality concerns in association with changing lake levels. DNR fisheries also indicate a stable condition with regards to the fisheries, with all fishery management objectives being met.

The FoDCL asserted that holding the upper rule band elevation at 2461 feet through July resulted in unreasonable impacts on water quality from increased shoreline erosion. The highest upper rule band elevation of 2461 feet is consistent with the goal to minimize the

potential for erosion of sensitive lake shoreline (page 4-3 Penelec Support Document (1994 Revision)). Impairments in water quality have not been linked to shoreline erosion. The FoDCL also indicate that increased boat wakes and boat traffic play a role in increasing shoreline erosion. Decisions on how to best address the potential impacts from boating lie with the Department of Natural Resources, with whom the authority for regulating boating activity rests.

Permit conditions requiring the maintenance of a minimum stream flow in the Youghiogheny River, and compliance with MDE oxygen levels in the discharge are to ensure that the appropriation does not unreasonably impact the downstream waters of the State.

The third reasonableness criteria (see COMAR 26.17.06.06.A(2)(b)) requires that the requested appropriation or use not have an unreasonable impact on other users of the waters of the State. FoDCL contends that MDE has not provided proof that existing negative impacts on Deep Creek Lake recreation will be remedied under the new permit. FoDCL stated that they are assuming the Brookfield request for a 25% increase in water releases will expand [the] area and intensity of unreasonable impact. And that the current permit is directly responsible for negative impact on DCL recreational uses – swimming, fishing and boating...and that water releases reduce water depth in the sediment impaired coves which cause a reduction in recreation uses.

MDE does not agree that a reduction in recreation use equates to an unreasonable impact. It is important to retain the context and history of the lake and power plant operations in this situation in evaluation of unreasonableness. First it is the dam, owned by Brookfield that enables the lake to be in existence. Their investment in owning and maintaining the dam allows lake recreation to continue at Deep Creek Lake for the public and surrounding landowners. The operation of the hydroelectric facility provides the means to pay for the dam upkeep and ensures the safe passage for water to leave the lake. The long history of hydropower use (nearing a century) has established that lake levels do have a seasonal pattern at Deep Creek Lake. The establishment of the Water Appropriation and Use Permit has reduced the degree to which lake levels were lowered during the recreation season, thereby improving lake recreation. The improvement in lake levels is explained in the Section addressing comments on the Rule Band (see pages 9 &10). As outlined in the DNR regulations and previously discussed, access to use the lake for recreation is a privilege and not a property right.

Supporting lake recreation is one of significant objectives of this permit. The requirements for Brookfield to manage (control) their discretionary releases to allow the lake to fill to elevation 2461 in early May and manage (control) discretionary releases with a goal to maintain water levels at or just below the Upper Rule Band during the recreation season is

contained within the Rule Band Condition of the new permit. These changes ensure that discretionary generation will not contribute to lower lake levels.

There are no additional negative impacts from increasing the appropriation quantity on other users since this increase will not result in lower lake levels. As described above, the increase is to allow for higher use when inflow to the lake exceeds the current limit. Reported usage from 1994 to 2019 present indicates; 23 years with less usage than 94,000,000 gpd (the current permit limit); 20 years with usage less than 80,000,000 gpd; 17 years with usage less than 70,000,000 gpd; 13 years with usage less than 60,000,000 gpd; 5 years with usage less than 50,000,000 gpd and 1 year with usage less than 40,000,000 gpd. Thus, other constraints limit usage (i.e. inflow), and increasing the allocation does not remove those constraints. The Rule Band Condition prevents increased withdrawals in years without increased inflow. The increased allocation will allow Brookfield to meet all of the permit requirements (i.e. preventing high lake levels above the Upper Rule Band) without exceeding its allocation during years of highest inflow levels.

The new permit requires the adoption of those practices which greatly increase the opportunity for a satisfactory recreational season into October for the great majority of lake property owners. The correction of sediment issues, however, should follow the Deep Creek Watershed Plan and other actions led by DNR and or Garrett County. MDE believes that the permit provides a balanced approach for ensuring Brookfield's right to use water from the lake and the other permit objectives. Dropping lake levels during the summer is a consequence of the multiple project objectives including ensuring that the permit allows for hydroelectric power generation.

Comment: MDE has failed to clarify the assessment framework upon which it appears to base its support for approval of the application. FoDCL explanation of the comment states that MDE has failed to focus its assessment of impacts on Deep Creek Lake. FoDCL states that "The current application review process pretty much ignores the primary resource, the lake."

Response: The assessment framework is most succinctly characterized by reasonableness criteria outlined above. The framework is outlined in the regulations and the concept of reasonableness was discussed at an early stakeholder meeting. This permit renewal application is for approval of a withdrawal that has been active for almost a century. The first water appropriation and use permit in 1994 was based on an in-depth analysis of the lake, recreational uses, water quality considerations, and fishery in the lake as well as downstream conditions. That first permit established the rule band for enhancing lake recreation. This permit review has built on that effort and subsequent renewals and made

changes that would help different permit objectives. Permit changes will further enhance lake recreation, improve protection of the downstream fishery, improve opportunities for whitewater and reduce the potential for shoreline erosion. The rule band and operating principals ensure that lake levels return each season. These permit conditions ensure the sustainability of the lake resource and prevents the overuse of the lake water. MDE does not believe that the review process has ignored the lake as the primary resource.

Comment: MDE has failed to incorporate a Deep Creek watershed approach in the review process, though State policy has embraced a such a framework for Deep Creek Lake and watershed management. The FoDCL recommended more direct involvement by the Administrative Council in the permit application review process. The FoDCL also acknowledged that the Administrative Council decided that goals 12 and 13 or the Deep Creek Watershed Plan, which had relevance to the permit renewal were not a priority for their work.

Response: MDE Water Supply Program staff participated in the original undertaking to develop the Deep Creek Watershed Management Plan. The Water Supply Program communicated with our representative to the Administrative Council during the permit review process. Representatives from the Administrative Council from Garrett County and DNR were included in the stakeholder meetings. Since Deep Creek Lake resides within the larger Youghiogheny River watershed, the impact, and opportunities for water quality improvement for the benefit of downstream uses are important elements in the permit. The withdrawal, however, does not impact water resources upstream of Deep Creek Lake. The permit review did not find that the proposed withdrawal had negative water quality impacts on Deep Creek Lake. The permit has conditions to protect water levels in Deep Creek Lake.

Comment: MDE failed to obtain analysis and comments from three State-created policy boards representing the Youghiogheny River watershed. The three boards are the Youghiogheny River Scenic and Wild Review Board, the Deep Creek Policy and Review Board and the Deep Creek Watershed Management Administrative Council.

Response: MDE complied with the public participation requirements of the Environment Article (see Section § 5-204). Participation of these boards is not mandated in the Environment Article, but representatives of the Policy and Review Board and the Administrative Council participated in the stakeholder meetings.

Below are a summary of additional comments and MDE responses from the FoDCL

Comment: The FoDCL urges the State of Maryland to use Brookfield’s Water Appropriation and Use application review process as a catalyst for the creation of a broad policy review of Deep Creek Lake management as well as for other 15 state-owned or managed lakes. The recommendation included the creation of a high-level Lake Policy Study Group to work on at least four areas of work: (1) Create an effective and comprehensive lake management for Deep Creek Lake and the other state-owned and managed lakes; (2) Draft a new Water Appropriation permit for Deep Creek Lake; (3) Adopt Sustainable Sediment Management Plan for all state lakes; and (4) Develop a lake resiliency plan and programs to counter the impacts of climate change.

Response: It appears from the context of these comments as described by FoDCL topic heading “GOING FORWARD – BEYOND THE DEEP CREEK HYDRO PERMIT REVIEW” that the FoDCL is recommending the above comments for future consideration. With respect to item (2) MDE is issuing a new permit based on input from Brookfield, the Department of Natural Resources, other stakeholder groups, comments from the public, and Maryland’s laws and regulations regarding water appropriation and use. The permit will have an effective term of twelve (12) years. MDE, therefore does not believe that it would be appropriate to begin drafting another permit at this time. All of the other comments are noted, but are beyond the scope of this Water Appropriation and Use Permit review.

Comment: FoDCL objects to the approval of Brookfield’s permit application without a commitment from the State and Brookfield to implement and fund dredging and remediation of the 10 sediment impaired coves in Deep Creek Lake; and shoreline stabilization protection for the entire state-owned buffer strip.

Response: MDE has not conditioned the approval of Brookfield’s application with funding of dredging or shoreline stabilization projects. Maryland’s laws and regulations regarding water appropriation and use have no mention of requirements for dredging or shoreline stabilization associated with water appropriation or use. The request to require Brookfield to fund this effort is not supported by existing regulations.

Comment: FoDCL states that it was unable to review missing information on the permit application prior to the close of the public comment period, since such information was not on the MDE website. FoDCL noted that MDE did not provide a draft TER permit condition for review, even though one was promised at the December TER stakeholder meeting.

Response: MDE used its website for posting a significant amount of information concerning the project. Annual Reports, past permit versions, the foundational Penelec Support Document, stakeholder meeting summaries and powerpoint presentations were all posted. In addition, MDE provided 60 additional days beyond the public informational hearing for

the public to provide comments or review its files. As noted previously, MDE's project file was made available for inspection and copying. MDE did not formulate a draft TER permit condition in the time interval between the TER meeting and the close of the public comment period, so MDE could not provide its recommendation for review. While MDE regrets that it was unable to deliver on this commitment, the public participation process for Water Appropriation and Use permits outlined in the Environment Article does not require that draft permit conditions be provided for public comment.

Comment: FoDCL expressed appreciation to Brookfield for operation along the upper rule band during the past six years, acknowledging that it has helped the southern section of the lake. FoDCL also expressed appreciation for the stakeholder meetings and the role that Brookfield and MDE representatives played in fostering productive and collaborative discussions.

Response: MDE appreciates these comments.