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**BELL BEND NUCLEAR POWER PLANT
SUPPLEMENTAL INFORMATION REGARDING
PROJECT IMPACTS TO DOWNSTREAM WATER USERS
BNP-2012-257 Docket No. 52-039**

- References:
- 1) M. J. Caverly to J. Buczynski (PADEP), A. Elliot (ACOE) and J. L. Richenderfer (SRBC), "Joint Permit Application, SRBC Water Use Applications Final Aquatics Study Report", BNP-2012-0097 dated April 27, 2012,
 - 2) J. L. Richenderfer (SRBC) to M. J. Caverly, "Holtwood Hydroelectric Station; Letter from Dennis Murphy to Andrew D. Dehoff, dated March 9, 2012; Application to Provide Consumptive Water Use Mitigation", dated June 27, 2012.
 - 3) M. J. Caverly to J. Buczynski (PADEP), A. Elliot (ACOE) and J. L. Richenderfer (SRBC), "Joint Permit Application, SRBC Water Use Applications Final Aquatics Study Report (Rev 1)", BNP-2012-0148, dated June 28, 2012.

This letter provides supplemental information and analysis related to the potential impact of the proposed Bell Bend project on downstream water users. PPL Bell Bend, LLC (PPL) previously provided an analysis to the Commission in the Aquatics Study Report (References 1 and 3 above) for Commission consideration. Section 6 of this report addressed potential project impacts on downstream water users. In the Section 6 analysis PPL considered the flow releases from the Cowanesque and Whitney Point Reservoirs. In a letter dated June 27, 2012 (Reference 2) the Commission staff noted the following:

"Whitney Point flows are designated for other uses and should not be attributed to BBNPP consumptive use. Mitigation releases for TMI cannot be used for BBNPP mitigation unless PPL establishes an agreement with TMI for its use, including a new and appropriate trigger for BBNPP, and proposes another acceptable source of mitigation for TMI. An upstream replacement mitigation source for Montour SES must be established for BBNPP to utilize the Cowanesque releases designated for Montour SES."

Following further discussion of this Commission staff letter, at a meeting with the SRBC staff and PADEP on July 31, 2012, the SRBC requested that PPL provide further analysis of the potential impact of the Bell Bend project on downstream water users, without attributing Whitney Point flow augmentation, or the flow augmentation releases from the Cowanesque Reservoir for downstream consumptive uses as mitigation for the Bell Bend consumptive use. At this meeting

PPL was also advised that SRBC would require consumptive use mitigation for the Bell Bend project at points upstream of the proposed Bell Bend water withdrawal.

In light of these Commission requirements, PPL has reconsidered the report Section 6 analysis and submits the following for inclusion in the project record. The following analysis considers two scenarios. Scenario 1 presumes upstream mitigation in accordance with the Commission's consumptive use regulation and implementation of a Commission-determined passby flow. Flow augmentation effects due to Cowanesque or Whitney Point are not relevant to this analysis. Scenario 2 addresses potential impacts absent Commission mitigation requirements to permit the Commission to evaluate potential impacts to downstream users for the purpose of determining a passby flow amount for Bell Bend. Under this scenario flow augmentation from either Whitney Point or Cowanesque is relevant to the potential presence of impacts as further discussed below.

Background

As noted in Section 6 of the Aquatics Studies Report, users of the waters of the Susquehanna River downstream of BBNPP can be classified as either direct withdrawers of water or dischargers that depend on the dilution and assimilative capacities of the Susquehanna River. For direct withdrawers (e.g., municipal water utilities) the primary issues are the availability of water, the functionality of intake structures at low water surface elevations, and impacts associated with intake water quality and treatability. For dischargers, end-of-pipe concentration limits are the principle issue. These limits are established by PADEP and depend on specific flow rates used in calculations and models run by PADEP (e.g., PENTOXSD).

Scenario 1 - Expected Impacts with Commission Prescribed Mitigation

Under this scenario the Commission will require consumptive use mitigation at points upstream of Bell Bend during periods when flow is less than a Commission defined flow trigger. The Commission will also impose a passby flow in accordance with the Commission's passby flow policy in effect at the time. The passby policy will require either shutdown of the Bell Bend plant, or sufficient replacement water at points upstream of the plant to permit its continued operation. In recognition of the foregoing, Bell Bend commits to provide full consumptive use makeup mitigation above the plant withdrawal site whenever it is operating during low flow periods. The net result of these mitigation requirements and measures will be no net reduction in flow below the Bell Bend plant during low flow periods. Therefore, no impacts to downstream users would occur at flows equal to or less than flow amounts prescribed by the Commission. Under higher flow conditions, the net effect of Bell Bend operations on downstream water users would be insignificant. Water withdrawers would not be affected as 1) sufficient water would be available, 2) intake design would not be a constraint, and 3) no treatability issues would arise as the Bell Bend project discharge will be required to fully comply with an NPDES discharge permit to be issued by the DEP. Water dischargers would also not be affected as NPDES prescribed effluent limits would not be subject to change due to the maintenance of existing low flow frequency (7Q10).

Scenario 2 - Expected Impacts Absent Commission Prescribed Mitigation

This scenario was evaluated to provide the Commission with revised information to supplement the full slate of aquatic analyses already, or soon to be, provided for use in evaluating the need for and amount of a Bell Bend passby flow.

- Impacts to Water Withdrawers

As provided in Table 6-1 of the Aquatics Report three downstream withdrawal facilities (PA American Water, Mifflin Township Water Authority, and Catawissa Borough Municipal Authority) indicated no expected impact on their well water withdrawals as a result of the project consumptive water use. The Danville Municipal Authority indicated a potential impact on raw water treatability and the quantity of treatment residuals requiring disposal. Cherokee Pharmaceuticals, Riverside indicated a general concern for potential impacts.

As documented in the Aquatics Report,, the BBNPP consumptive use will only result in a very small change in water level (generally less than 0.5 inch at the BBNPP project under low flow conditions) which is unlikely to have any impact on either the Danville Municipal Authority or Cherokee Pharmaceuticals' ability to withdraw water from the river 30 miles downstream from BBNPP. Small water level changes are also unlikely to have any impacts on nearby municipal well water levels, confirming the no expected impact response from PA American Water, Mifflin Township and Catawissa Borough.

With respect to raw water treatability, the discharge from BBNPP must meet PADEP NPDES permit discharge standards which will be set so as to ensure that there are no significant impacts to downstream users. Therefore, no impacts to raw water treatability are expected.

The above conclusions remain unchanged from the conclusions in Section 6 of the Aquatics Report.

- Impacts to Downstream Dischargers

The remaining issue with respect to regulated downstream wastewater discharges is the owner's ability to meet effluent limits under an assumption that the BBNPP consumptive use will alter (reduce) the rate of flow used by PADEP for calculating their NPDES discharge limits. Three of the seven wastewater treatment dischargers as listed in Table 6-2 of the Aquatics Report indicated little or no expected impact due to the proposed BBNPP consumptive water use. One discharger did not respond to phone inquiries, while three dischargers indicated either that they could be potentially impacted or that additional analysis is required.

Normally, when effluent limitations in an NPDES discharge permit are set by the PADEP, the PADEP performs modeling using PENTOXSD. PENTOXSD uses three different design stream flows to compute the Wasteload Allocations (WLAs). They are the 7Q10, 30Q10 and Qh (harmonic mean flow). These stream flows are specified in the Water Quality Standards, Pa. Code Title 25 Section 96.4(g) Table 1. The Qh flow is used to regulate the release of carcinogens.

Because consumptive water use at BBNPP is less than one percent of harmonic mean flow its impact on any effluent limitations for carcinogens would be de minimis at best, if measurable at all.

PPL previously asserted that operations of Cowanesque and Whitney Reservoirs during low flow periods would be expected to offset any flow reduction associated with the BBNPP consumptive use. This is due to the fact that these reservoir operations are not currently reflected in the historical flow record used in the analysis, and as a result are not reflected in current low flow statistics (7Q10, 30Q10) or any PENTOXSD modeling that has been performed in setting downstream discharge effluent limitations. As a result, no net change to the statistically derived flows is expected, and no impacts to downstream effluent limitations would be expected to occur once these flows enhancements are accounted for.

It is with respect to this last matter that SRBC staff takes exception, and further analysis is provided below. We make specific note that it was never PPL's intention in the Aquatics Report analysis to presume that either Whitney Point or Cowanesque releases would satisfy (be credited to) the Commission's consumptive use mitigation requirements for the Bell Bend project. Rather, these releases were solely evaluated simply with respect to their presence in the river (at points below Bell Bend) during low flow periods. In other words, the river does not know that its flows are partially due to releases from those reservoirs which are allocated to others. The impacts the river sees are the impacts with those flows in it.

As noted in the June 27, 2012 SRBC letter, PPL now understands that Whitney Point water, at least to some degree is "allocated" to *potential future* basin consumptive water uses upstream of the Bell Bend plant. When these consumptive uses develop, Whitney Point will no longer contribute flows at points below the Bell Bend project. Similarly, it is conceivable that current Cowanesque releases for other purposes (Montour and TMI) could change or terminate in the future as these flow releases are currently independent of Bell Bend mitigation.

Although the beneficial impacts of these supplemental flows are independent of Bell Bend, we believe that their expected presence for the foreseeable future is relevant to a Commission passby flow determination for Bell Bend, and therefore respectfully request that it be considered in this context. Until such time as additional consumptive uses develop, operational releases from Whitney Point would be expected to contribute to downstream flows and should be considered for an accurate assessment of impacts to the river.

Similarly, any releases from the Cowanesque Reservoir for either PPL's Montour station, or for Exelon's TMI station would also contribute to river flows and should be considered for an accurate evaluation of river impacts.

In the future, should use of these assets change in such a way as they would no longer contribute flows to areas below the Bell Bend project, then the potential for an alteration of a statistically derived low flows in areas below Bell Bend would increase, which could impact downstream user effluent limitations upon NPDES permit renewal. Such impacts could also occur due to any future basin unmitigated consumptive use that is located upstream of the designated discharger.

We hope that this additional information provides the needed clarification of our assessment. Should you have questions or need further clarification regarding this matter, please contact Gary Petrewski of my staff (gpetrewski@pplweb.com or 610-774-5996).

Respectfully,



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MJC/kw

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