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March 1, 2013

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC20555-0001

BELL BEND NUCLEAR POWER PLANT
REDACTION OF RESPONSE TO RAI ENV-19
BNP-2013-023 Docket No. 52-039

Reference: BNP-2012-281, R. R. Sgarro (PPL) to Document Control Desk (NRC), "Response to RAI ENV-19", dated December 4, 2012.

The purpose of this letter is to provide a revised redacted version of Attachment 2, Enclosure 1, of the referenced letter based on discussions with the NRC staff.

Please note that line spacing has been changed and some wording has been added that makes the redacted version more readable for the public without materially changing its content.

The revised Attachment 2, Enclosure 1 supersedes the referenced version in its entirety.

Should you have questions, please contact the undersigned at 610.774.7552.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on March 1, 2013.

Respectfully,

Rocco R. Sgarro

RRS/kw

Attachment: As stated

D102
NRO

cc: w/ Attachment

Ms. Laura Quinn-Willingham
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w/o Attachment

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Attachment

Revised Redacted Version of BNP-2012-281, Attachment 2, Enclosure 1

Enclosure 1: Consumptive Use Mitigation Plan

Primary Plan

Note: Cited mgd estimates are based on current SRBC policy or existing permit requirements.

Resource "A"

PPL's Primary Plan for satisfying the SRBC mitigation requirements will focus on utilizing [redacted] as the primary mitigation source for BBNPP. This reservoir is currently permitted by the SRBC for between 65 and 75 [redacted] mgd of consumptive use mitigation for generation facilities [redacted]

Between 35 and 45 mgd of this total

and

[redacted] is allocated [redacted] will not be used for BBNPP), and the remainder (<10 mgd) [redacted] is allocated to Facility "A" [redacted]. At the appropriate time in the project schedule, [redacted] BBNPP to support SRBC approval of the project, prior to initiating project construction. PPL is currently investigating development of the Rushton Mine, on the West Branch of the Susquehanna River, to provide water for [redacted]. Other options may be considered given the circumstances at the time of a decision to build.

this remainder will be utilized by

Facility "A"

Between 20 and 30

Resource "A"

a generating station

[redacted] mgd of water at [redacted] is currently allocated to [redacted]; [redacted] mgd of this is used for consumptive use mitigation [redacted]

between 10 and 20

remainder

control all of this water

[redacted], and the [redacted] is unused. Upon making the decision to proceed with construction of BBNPP, PPL would plan to [redacted]. PPL controls sufficient compensatory water at PPL's Holtwood hydroelectric site that is sufficiently sized, ideally located and is currently available [redacted]. However, similar to Rushton, other options may ultimately be used to fulfill this need.

[redacted] subject to any applicable regulatory approvals, PPL would [redacted] mgd of consumptive use makeup water in [redacted], which exceeds the anticipated consumptive use at BBNPP.

have between 30 and 40

Resource "A"

A key reason [redacted] was chosen as the Primary Plan is due to the fact that it: i) contains a sufficient quantity of water to satisfy 100% of BBNPP's needs, and ii) does not require further development and has already been evaluated as part of past permitting activities. Therefore, there would be no incremental environmental impacts associated with this mitigation source.

Although PPL cannot be certain that Rushton or Holtwood resources would be utilized as described above, the only potential environmental impacts of this alternative would be those related to establishing new consumptive mitigation from these facilities. Each of these is discussed below.

Mitigation from Rushton Mine

Rushton Mine is owned by Pennsylvania Mines, LLC, an affiliate of PPL Bell Bend, LLC. The mine is located in Clearfield and Centre counties in Pennsylvania approximately two miles southeast of the Borough of Philipsburg. The mine water treatment plant and discharge point are located in Centre County. The mine pool is currently controlled through a pumping and treatment operation with its discharge to Moshannon Creek, which is a tributary to the West Branch of the Susquehanna River. The existing discharge is regulated under an NPDES permit. Current operations serve to limit the elevation of the mine pool to less than elevation 1,420 feet MSL to prevent uncontrolled mine seeps to receiving streams.

Facility "A"

Resource "A"

The mine is located upstream of [redacted], and can be used, subject to SRBC approval, to replace the approved use of [redacted] water as consumptive use mitigation for [redacted]. This would make 3,000 acre-feet of [redacted] water available to satisfy SRBC mitigation requirements for the Bell Bend project.

Facility "A"

Resource "A"

The current net maximum daily discharge to Moshannon Creek is estimated to be 6.9 mgd with 0.7 mgd returned to the mine with sludge from the existing NPDES regulated mine water treatment process. The treated mine water is discharged to Moshannon Creek which is designated as both a Trout Stocked Fishery and a Migratory Fishery in 25 Pa Code Chapter 93.9l. Moshannon Creek is currently listed as an impaired stream due to elevated metals (Iron, Aluminum, and Manganese) from abandoned mine

discharges upstream of the Rushton Mine discharge. (Ref: DEP eMap PA, non-attainment streams) The net result of existing Rushton Mine water treatment discharge is an improvement to Moshannon Creek water quality.

Resource "A" for Facility "A"

In order to make use of Rushton Mine to replace the existing use of [redacted], an expansion of the Rushton Mine water treatment plant would be required. Pennsylvania Mines, LLC would increase the size of the existing water treatment plant to provide for a maximum discharge capacity of approximately 14 mgd.

The development plan would include new pumps and the construction of a water treatment plant that would discharge to Moshannon Creek via an existing outfall channel. No new stream encroachments requiring either federal or state permitting are anticipated.

Currently, sludge disposal is accomplished by injecting the sludge back into the mine void. Mechanical sludge dewatering facilities/methods will be utilized to accommodate expanded treatment. The “dry” sludge can be readily disposed of by truck transport and placed into the existing (permitted) sludge drying basins located approximately 3,500 feet from the existing treatment plant site. Upon exhaustion of the remaining capacity of the drying basins, dried sludge could then be land-filled on the (permitted) Coal Refuse Disposal Area. Revisions to environmental permits (PADEP) to allow sludge disposal in the sludge drying basins and/or to the Pauline Hollow Coal Refuse Disposal Area would be required.

The Rushton Mine has adequate space for an expanded water treatment plant, additional drawdown wells and pumps, and sludge handling facilities.

Environmental Impacts - Rushton

The following construction and operational environmental impacts are anticipated:

- **Noise**: Small. There is a low population density in this area. Temporary construction noise has to comply with local ordinances at the project property line. Any noise at the property line is mitigated by distance and screening. The recovery well and water treatment plant are located away from the property line and any noise associated with their operation will be almost undetectable at the property line.

- **Erosion**: Small. Construction impacts would be minimized through implementation of appropriate erosion and sediment control BMPs. The mine voids are surrounded by bed rock making erosion of the mine unlikely. Discharge is by open channel to the Moshannon Creek. Low flow releases will occur during a time of low flow in the creek. Because flow discharges will be within the typical flow values of the stream, stream bank erosion will not be accelerated.

- **Effluents**: Small. Rushton Mine is compliant with its NPDES permit. All consumptive use mitigation would be subject to regulation under a revised NPDES permit for the project.

- **Surface water**: Small [positive]. - Moshannon Creek has historically been affected by abandoned mine drainage. Rushton Mine discharges must meet Commonwealth water quality standards. During the summer season water quality improvement will occur to Moshannon Creek as the Rushton discharge becomes a greater percentage of the overall volume in the creek.

- **Groundwater**: Neutral to small. Any impacts to neighboring wells or stream recharge are expected to be small. The mine has historically been maintained in a drawn down condition during active mining periods. This operation ceased in 1991. When Rushton Mine was active, the mine was dewatered to elevation 1,240 ft; this drawdown far exceeds the maximum drawdown proposed. No wells in service prior to closure of Rushton Mine would be adversely affected by the proposed operation. There has been little residential development on surrounding lands since that time. The Rushton Mine is overlain by several other mines which are all inactive. The water-filled voids in these overlying mines would mask any effect of pool fluctuations in the Rushton Mine. Finally, the bulk of the area over and around Rushton Mine is served by the Pennsylvania American Water Company (PAWC).

- **Sludge disposal**: Neutral. Installation of a new sludge dewatering system would eliminate potential concerns.

- **Terrestrial**: None – A search of the Pennsylvania Natural Diversity Inventory for this site resulted in "No Known Impact" responses from the Pennsylvania Game Commission, the Pennsylvania Department of Conservation and Natural Resources, the Pennsylvania Fish and Boat Commission, and the U.S. Fish and Wildlife Service. Endangered species of bats are found in Centre and Clearfield Counties. However, due to the extensive surface mining that has occurred in this area, habitat for nursing and roosting bats is not present. The Rushton Mine site was previously disturbed for both subsurface and strip mining with the culm banks being stabilized. Revegetation and natural succession is occurring. Because of the perched water table in this area no wetlands are anticipated to be impacted by this drawdown.

- **Aquatic**: Small [positive]. Although designated as both a Trout Stocked Fishery and a Migratory Fishery, Moshannon Creek is listed as an impaired stream, as it does not support reproduction of trout and other fish species and has little to no aquatic life. Discharge of treated mine pool water is helping to improve the water quality and water temperature in the creek. An increased discharge during seasonally low streamflow periods would improve stream water quality.

- **Socioeconomic**: Small [positive]. Because the Moshannon Creek is already slightly impaired and has been for decades, any improvements in overall water quality will eventually lead to a small increase in positive socioeconomic impacts. Expansion of the water treatment plant will create temporary construction opportunities and may result in the need for additional permanent jobs (e.g., waste water treatment plant operators).

- **Cumulative**: Consumptive water use mitigation releases will positively impact the West Branch Susquehanna River upstream of [redacted].

Facility "A"

Mitigation from Holtwood

The Holtwood dam and hydroelectric facility is an existing project owned and operated by PPL Holtwood, LLC, an affiliate of PPL Bell Bend, LLC. The project is located on the lower Susquehanna River in Lancaster and York Counties, southwest of the City of Lancaster. The project operates under an existing license (FERC No. 1881) issued by the Federal Energy Regulatory Commission (FERC). PPL Holtwood, LLC currently operates the project for daily peaking utilizing existing storage in the reservoir behind the dam to regulate project inflow from the upriver Safe Harbor hydroelectric plant.

In a letter to PPL dated June 27, 2012, the SRBC staff indicated that it could not recommend approval of use of the Holtwood pond (Lake Aldred) for direct consumptive use mitigation for the Bell Bend project. However, that letter also acknowledged that

"this does not preclude using operations at Holtwood as potential mitigation for other, more appropriate PPL assets."

In its March 2012 application to the SRBC in support of BBNPP, PPL proposed to allocate storage in the Holtwood pond based on an elevation 167.5 feet during the summer months and between 167.5 feet and 165.0 feet after September 15 to facilitate consumptive use mitigation operations. During the recreation season (through September 15), PPL proposed to provide up to 3,370 acre-feet of storage in Lake Aldred above the FERC-required recreational pool minimum elevation of 167.5 feet to provide consumptive use make-up water in the basin. After September 15, PPL proposed to provide up to 6,090 acre-feet of Lake Aldred storage for consumptive water use mitigation. Under the primary plan, this same mitigation capacity would be developed [redacted] as part of [redacted] mgd [redacted] currently allocated to a generating station [redacted] located downstream of Holtwood. This would allow that [redacted] pass-by flow requirement [redacted] so that no additional mitigation sources would need to be developed.

the 20 - 30

in Resource "A"

station to meet its

Based on OASIS modeling (utilized by the SRBC to simulate the routing of water through a water resources system) previously performed, the Holtwood project will have the capability of providing up to 27 mgd of consumptive water use mitigation during the summer recreation period and higher amounts after September 15 (>31 mgd).

No changes to the project's current FERC license or other operating permits would be required. Reservoir operations would continue to fluctuate on a daily basis to provide hydroelectric generation during peak periods of the day.

Environmental Impacts - Holtwood

Use of the Holtwood project would require no new construction or development. All proposed operations would be consistent with the project's existing FERC license and other operating permits. Changes to daily pond operations would be small. Any deviations would be within the limits of current operational ranges. As a result, no new environmental impacts will occur.

In contrast to other upstream mitigation sources that may be diverted by the upstream Safe Harbor reservoir (no project minimum release is in effect), there is greater certainty that consumptive water use mitigation releases from Holtwood will improve daily low flow conditions to the Chesapeake Bay, which supports the goals of Executive Order 13508.

Secondary Option

Resource "B"

[redacted] is a federal (Army Corps of Engineers, ACOE) River Basin "A"

multipurpose project located in [redacted], a tributary of the North Branch

Resource "B"

of the Susquehanna River. [redacted] consists of two

separate dams, one on [redacted], and one on [redacted]. [redacted]

Waterway "A" Waterway "B"

[redacted]

Resource "B"

[redacted] The authorized purposes of [redacted] are for flood damage reduction, recreation, and water quality. The dams help decrease the acidity of water in [redacted] downstream of the dams by dilution with the more neutral waters of [redacted]. The upstream [redacted] acidity is caused by abandoned mine drainage.

Waterway "A"

Waterway "B"

Waterway "A"

the two dams

A conservation pool is maintained in [redacted]. The balance of available storage is currently reserved for flood control operations. The following summarizes current storage volumes.

Dam 1

Dam 2

Storage	[redacted] (AF)	[redacted] (AF)	Total (AF)
Conservation Storage	9,500	8,850	18,350
Total Storage Capacity	143,200	136,000	279,200

Under the Susquehanna River Drought Coordination Plan[1] the ACOE has developed drought management plans for its reservoir projects in the Susquehanna River Basin including [redacted]. The plans provide for two phases of drought management activities. During Phase I drought conditions (Drought Watch) [redacted] is not used due to the potential significant impacts on project recreation facilities. However, during more severe drought conditions (Phase II) excess conservation storage at [redacted] is made available as an emergency source of municipal and industrial water supply as hydrologic conditions allow as authorized under Section 6 of the Flood Control Act of 1944. In this case, "surplus" storage is defined as water that would be more beneficially used as municipal and industrial water supply than the authorized purpose and that, when withdrawn, would not significantly affect authorized purposes over some specific time period.

Resource "B"

Resource "B"

Resource "B"

The SRBC and the ACOE have identified [redacted] as a potential permanent source of water supply to further assist with drought management in the Susquehanna basin, or as a source of consumptive use make-up water for development projects in the basin. Use of [redacted] for this purpose would require a local sponsor (SRBC) and would be subject to a reformulation study by the ACOE. The addition of a low flow augmentation or water supply purpose to the project would require approval by the Chief of Engineers, ACOE.

Resource "B"

A reformulation study by the ACOE would define water supply/low flow augmentation storage consistent with other project purposes. This study would define changes to the

[1] SUSQUEHANNA RIVER BASIN DROUGHT COORDINATION PLAN, SRBC *Publication No. 212 August 10, 2000.*

project's permanent pool elevation and required modifications to project facilities to support this new use. The potential incremental water storage for low flow augmentation would be expected to exceed BBNPP's full consumptive use. Once approved by the Chief of Engineers the development would be undertaken by the ACOE with funding provided by the SRBC as the local sponsor. Use of the approved project to satisfy Bell Bend mitigation requirements would require one or more contractual arrangements among PPL, ACOE and the SRBC, which would likely involve PPL funding the development activities and SRBC or ACOE operating the facility in support of PPL mitigation requirements.

Environmental Impacts

As a component of the reformulation study the ACOE would examine the potential environmental impact of the proposed development. Impacts would be dependent upon the amount of project storage allocated to the water supply/low flow augmentation purpose, the change to the permanent pool elevation, and the amount of water made available for release to the receiving streams. It is considered highly likely that such amounts would be more than sufficient to fully mitigate for Bell Bend consumptive water use.

The following characterizes the general scope of these expected impacts. Any such impact would be fully evaluated, as necessary, as part of the ACOE reformulation study.

Impacts Associated with Project Development by the ACOE

The primary changes to the project that would be expected to accommodate an increase to the permanent pool elevation behind the dams would be modification of existing recreational facilities and access roads. These changes would occur within the basin behind the dams, in areas previously disturbed during the original construction of the dams, and presently subject to flooding during high flow events. The ACOE would be expected to design modifications to minimize impacts to wetlands or other sensitive habitat. As a result, project modifications are likely to result in small impacts within the basins above the dams.

Waterways "A" and "B"

An increase in the permanent pool elevation would also extend the reservoir further up [redacted] thereby inundating free-flowing stream reaches. These impacts would be offset by an increase in available aquatic habitat within the impoundment.

Impacts Associated with Project Construction

- **Noise**: Small. There is a low population density in this area. Any noise at the property line is mitigated by distance and screening.

- **Erosion**: Small. ACOE would implement an appropriate sediment and erosion plan during construction.

Resource "B"

- **Terrestrial**: Small. [redacted] was previously disturbed during its construction. Construction activities would not expected to impact any wetlands, migratory birds, or rare, threatened or endangered species [redacted]

- **Aquatic**: Small. Flow and lake level management during construction activities could have a small impact on lake aquatic species.

- **Socioeconomic**: Small. Construction activities are likely to have a small favorable temporary impact on the local economy.

Impacts Associated with Project Operations

Waterway "A"

- **Erosion**: Small. Discharge is expected to be by a gated valve to [redacted]. Low flow releases will occur during a time of low flow in the river. Because flow discharges will be within the typical flow values of the river, river bank erosion will not be accelerated. Infrequent drought operations are also unlikely to create any significant reservoir shoreline impacts.

Waterway "B" Waterway "A"

- **Effluents**: Small [positive]. Mixing of [redacted] with [redacted] prior to discharge back into [redacted] will help decrease the acidity that occurs upstream in [redacted] from abandoned mine drainage (AMD). No additional effluent treatment is expected.

Waterway "A"

Waterway "A"

- **Surface water**: Medium [positive]. [redacted] has historically been impacted by AMD. Mixing this water with the water from [redacted] will both dilute and neutralize its acidity. During the summer season water quality improvement will occur to [redacted] as the [redacted] discharge becomes a greater percentage of the overall volume in the river.

Waterway "B"

Waterway "A"

Resource "B"

- **Terrestrial**: Small. [redacted] was previously disturbed during its construction. A small increase in reservoir elevation is not expected to affect any wetlands, migratory birds, or rare, threatened or endangered species [redacted], however, some existing terrestrial habitat would become permanently inundated.

Waterway "A"

- **Aquatic**: Small [positive]. Discharge to [redacted]: [redacted] below the reservoir is now classified as a cold water fishery. A conservation release to mitigate consumptive water use downstream will have minor benefits dependent on the percentage of flow being replaced.

Resource "B"

- **Socioeconomic**: Small [positive]. Because [redacted] is an ACOE flood control reservoir project with multiple objectives including recreation, such as swimming, boating, hiking, picnicking, hunting and fishing, changes in water level are unlikely to significantly affect the nearby community. An increase in the permanent pool elevation may result in enhanced recreational opportunities.

Cumulative: Consumptive water use mitigation releases will positively impact all downstream users.