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February 27, 2014

ATTN: Document Control Desk U.S. Nuclear Regulatory Commission Washington, D.C. 20555-0001

BELL BEND NUCLEAR POWER PLANTRESPONSE TO RAI ENV-27BNP-2014-020Docket No. 52-039

Reference: T. Terry (NRC) to R. R. Sgarro (PPL Bell Bend, LLC), Final RAIs ENV-27, email dated January 28, 2014

This letter provides the PPL Bell Bend, LLC (PPL) response to the Request for Additional Information (RAI) No. ENV-27 (Reference). The RAI addresses information contained in the Bell Bend Nuclear Power Plant (BBNPP) Combined License Application (COLA) Part 3, Environmental Report (ER).

The Enclosure provides PPL's responses to RAI ENV-27, Questions: AE-7316; AE-7320; GEN-7359; NFP-7333; SOC-7335; SOC-7336; TE-7322; TE-7346; and TE-7351.

The responses include revised COLA content which will be included in a future COLA revision, and is the only regulatory commitment in this correspondence.

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 February 27, 2014.

Respectfully,

Rocco R. \$gar

RRS/kw

Enclosure:

Responses to RAI ENV-27, Questions: AE-7316; AE-7320; GEN-7359; NFP-7333; SOC-7335; SOC-7336; TE-7322; TE-7346; and TE-7351

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Responses to RAI ENV-27, Questions: AE-7316; AE-7320; GEN-7359; NFP-7333; SOC-7335; SOC-7336; TE-7322; TE-7346; and TE-7351

RAI ENV-27 Question AE 7316:

ESRP Section 5.2.1 directs the staff's identification, analysis, and description of hydrologic alterations resulting from plant operation and the staff's analysis of the adequacy of the water sources proposed to supply plant water needs. In its Consumptive Use Mitigation Plan submitted October 21, 2013 (BNP-2013-142) and in the response to RAI ENV-19 (12-4-12 ML123490007 PPL BNP-2012-281), PPL described the Rushton Mine option to serve as a low-flow augmentation source for the Montour Generating Station, suggesting that increasing the capacity from the mine to about 14 mgd would cover the present "normal" flow from the mine (6.9 mgd) and the Montour low-flow requirement (8.8 mgd). However, it seems that the total flow required would be 15.7 mgd, of which 0.7 mgd might be provided by switching to the dry sludge disposal as described. Therefore, the proposed option appears to be about 1.0 mgd "short" of the amount actually needed. Provide the correct capacity available from the Rushton Mine to account for the normal mine flow and the additional Montour low-flow mitigation requirement.

Response:

PPL Bell Bend, LLC (PPL) stated the following in the response to NRC RAI ENV 19: "In order to make use of Rushton Mine to replace the existing use of the Cowanesque Reservoir for the Montour Plant, 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 <u>approximately</u> (emphasis added) 14 mgd."¹

The existing treatment plant at the Rushton Mine has a maximum discharge capacity of approximately 6.9 mgd. This existing capacity is insufficient to replace use of Cowanesque as a low-flow augmentation source for the Montour Generating Station. In order to replace the 8.8 mgd use of Cowanesque for augmentation for the Montour Generating Station from Rushton Mine, releases from the Rushton Mine must total 8.8 mgd plus natural baseflow inputs (recharge) to the mine. Mine recharge during drought periods of expected operation has been estimated from historical data to be in the range of 3 mgd (not 6.9 mgd). The 6.9 mgd represents maximum mine recharge, not the recharge expected during seasonal low-flow periods when consumptive use would be required. Therefore, PPL would have to release approximately 11.8 mgd (8.8 mgd + 3 mgd) from the mine to satisfy Susquehanna River Basin Commission flow augmentation requirements. PPL has conservatively assumed that a new treatment plant with a maximum discharge capacity of approximately 14 mgd would be needed to meet the flow augmentation requirement, which accounts for some expected variability in recharge to the mine and a future sludge discharge expected to be greater than the current 0.7 mgd.

COLA Impact:

¹ BNP-2012-281, R. R. Sgarro, PPL Bell Bend, LLC to U.S. NRC Document Control Desk, "Bell Bend Nuclear Power Plant Response to RAI ENV-19," dated December 4, 2012.

RAI ENV-27 Question AE 7320:

ESRP Sections 2.4.1 and 2.4.2 direct the staff's description of the terrestrial and aquatic environment and biota at and in the vicinity of the site and other areas likely to be impacted by the construction, maintenance, or operation of the proposed project. ESRP Sections 4.3.1 and 4.3.2 direct the staff's description, quantification, and assessment of the impacts of construction of the proposed facilities on terrestrial and aquatic ecosystems. ER Rev 4, Section 5.2.1.3 (Hydrology) mentions that off-site hydrologic alterations would be expected as a result of construction or operational changes associated with SRBC required mitigation. The ER does not describe the potential effects of the off-site construction or operation changes on the respective off-site ecological communities. The response to RAI ENV-19 (BNP-2012-281) indicates that an expansion of Rushton mine water treatment plant would be required for consumptive use mitigation. Describe this in greater detail and any other expected off-site alterations, facilities and footprints resulting from consumptive use mitigation actions. Identify the extent and characteristics of the stream habitats and biota that would be affected by the alterations. Identify the types and areal extent of wetlands and other terrestrial habitats, and associated biota, that would be affected by the alterations.

Response:

The only physical off-site modifications associated with the PPL Bell Bend, LLC (PPL) consumptive use mitigation plan would be at the Rushton Mine, and potentially at the Tioga-Hammond reservoir. No physical modifications would be required at the Cowanesque Reservoir or Holtwood project.

At the Rushton Mine, a new treatment plant will be required. PPL has not yet undertaken a footprint design of this facility, however it is expected to be located adjacent to the existing treatment plant in a previously disturbed land area with minimal vegetative cover. Given the land acreage available on the site, PPL anticipates being able to site this facility with no impact to wetlands or terrestrial habitats of significance.

Development and use of the Tioga-Hammond reservoir for consumptive use mitigation may necessitate certain physical changes to on-site recreational facilities and potentially to dam outlet works. As discussed in PPL's response to NRC RAI ENV-19¹, physical modifications on site will depend on water level changes, identified by the Army Corps of Engineers (ACOE), in the development of their reformulation plan, for which a separate EIS will be developed. PPL anticipates the ACOE will seek to minimize project impacts to wetlands and terrestrial habitats.

COLA Impact:

¹ BNP-2012-281, R. R. Sgarro, PPL Bell Bend, LLC to U.S. NRC Document Control Desk, "Bell Bend Nuclear Power Plant Response to RAI ENV-19," dated December 4, 2012.

RAI ENV-27 Question GEN 7359:

Interim Staff Guidance on Environmental Issues Associated with New Reactors (COL/ESP-ISG-026) and revised rule 10 CFR 50.10 clarified which activities are defined as "construction" and "preconstruction." The USACE states that it considers all impacts of preconstruction and construction activities as direct impacts from a proposed Federal action. Because the USACE is a cooperating agency in review of the proposed action at Bell Bend, impacts from preconstruction will be discussed in EIS Chapter 4 to satisfy the needs of the USACE and will also be addressed in the cumulative impacts analysis in Chapter 7. ER Table 4.6-2, Revision 4, provides a summary of construction and preconstruction related impacts. Section 1.2.7 of the ER provides a schedule for major activity start and completion dates. It lists "Start of Construction*" as November 2017, with the asterisk referring to "first safety-related concrete". The staff requests that PPL clarify when pre-construction activities, as defined in 10 CFR 50.10 (a)(2), will start.

Response:

Pre-construction activities for the Bell Bend Nuclear Power Plant project are tentatively scheduled to start in October, 2015.

COLA Impact:

RAI ENV-27 Question NFP 7333:

ESRP Section 8.3 and ISG 26 direct the staff's review of electric power supply in the need for power analysis for the EIS. Chapter 8 of ER Rev 4 presents analysis of supply resources as they existed in 2007 and subsequent RAI responses have provided general discussion of the natural gas resource, but do not address the following specific issues. The NRC Staff have observed the recent emergence of the shale gas resource in Pennsylvania and surrounding areas affected by the Marcellus shale gas resource development. We have noted a very rapid movement in PA over the last year to approve substantial new gas-fired generating capacity of roughly 8 GW just in the Marcellus region of PA (Shale Daily, 5/20/2013). We understand some of this new capacity is planned to repower existing coal-fired generation planned for retirement, and some is speculative based on the expectation of a stable supply and relatively low-cost fuel. Given a near term rapid expansion of gas-fired generation in the range of 8- 15 GW or more by 2017 (Shale Daily, Feb. 15, 2013), please indicate the current and projected splits between baseload, intermediate load, and peak load resources by fuel in the BBNPP ROI market area. Please indicate how the recent emergence of new gas supplies in PA affects the analysis of need for power presented in Revision 4 of the ER and discussion provided in previous RAI responses.

Response:

Table 1 – "Generation Resources by Fuel Type", below, shows the current and projected splits between generation resources by type. The current (2013) split is from data in the *State of the Market Report for PJM* (Monitoring Analytics, LLC 2013¹). The 2017 and 2023 projections are calculated from the active generator interconnection² and deactivation³ queues from PJM. Currently coal, hydroelectric, natural gas, and nuclear generation are used as baseload resources; oil is a peaking resource; and renewables (solar and wind) are intermittent resources. Due to volatile natural gas prices, the use of certain resources as baseload/peaking power can change when the resource yields greater economic benefit. This may cause projected baseload/peaking splits to differ from the current splits. Note that even though there are active requests for generator interconnection and deactivation, this information is subject to change based on economic and other conditions.

¹ Monitoring Analytics, LLC, 2013. *Quarterly State of the Market Report for PJM: January through September.* Monitoring Analytics, LLC, November 2013.

² PJM Interconnection, LLC, 2013a. *PJM Generator Interconnection Queue: Active*, PJM Interconnection, LLC, website http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx, accessed February 24, 2014.

³ PJM Interconnection, LLC, 2013b. *PJM Generator Deactivation Summary Sheets*, PJM Interconnection, LLC website http://www.pjm.com/planning/generation-deactivation/gd-summaries.aspx, accessed February 24, 2014.

	201	3ª	2017 ^b		2023 ^b	
Fuel	MWe	Percent	MWe	Percent	MWe	Percent
Coal	77496.7	41.9%	64185.4	29.6%	64209.4	28.8%
Gas	53425.9	28.9%	85876.5	39.6%	90022.5	40.4%
Hydroelectric	8106.7	4.4%	8510.6	3.9%	8510.6	3.8%
Nuclear	33076.9	17.9%	33546.9	15.5%	33546.9	15.0%
Oil	11314.2	6.1%	10927.2	5.0%	12751.2	5.7%
Solar	82.7	0.0%	1378.3	0.6%	1393.2	0.6%
Solid Waste	709.4	0.4%	1127.1	0.5%	1127.1	0.5%
Wind	872.4	0.5%	11449.7	5.3%	11449.7	5.1%
Total	185084.9		217001.7		223010.6	

Table 1Generation Resources by Fuel Type

^aAs of 09/30/2013¹

^bProjected from publicly available PJM active generator interconnection² and deactivation³ queues

With new, stricter environmental regulations coming in 2015 and beyond, the installed capacity of coal generation is expected to decrease, reducing the amount of coal-fired generation in the Bell Bend Region of Interest (ROI) through 2023. In addition, low natural gas prices will decrease the amount of coal being used as a baseload resource. Low natural gas prices will encourage use of natural gas as a baseload resource and will also decrease the amount of natural gas used as an intermediate or peaking resource. Lower natural gas prices will lead to a tradeoff between coal and natural gas and not affect nuclear generation. This could shift the generation fuel mix and baseload/intermediate/peaking breakdown considerably, based on the price of natural gas. The use of natural gas as a baseload resource is a function of low gas prices (below \$3.00 per thousand cubic feet in 2012). Since the price of natural gas is historically volatile, it is difficult to predict the future split of baseload, intermediate, and peaking resources. If natural gas prices increase it will create a need for baseload generation such as a nuclear power plant.

To maintain a diversified generation fuel mix, it will be important to not rely solely on natural gas. Therefore, a decrease in coal generation and an increase in natural gas generation could be expected in the future. However, other sources of electricity will need to be considered as well. A diversified fuel mix is important to maintain reliability and stability within the Bell Bend ROI. Factors, such as the volatile price of natural gas, and new environmental regulations, make it difficult to predict what the fuel mix breakdown will be in 2017 and beyond.

¹ Monitoring Analytics, LLC, 2013. *Quarterly State of the Market Report for PJM: January through September.* Monitoring Analytics, LLC, November 2013

² PJM Interconnection, LLC, 2013a. *PJM Generator Interconnection Queue: Active*, PJM Interconnection, LLC, website http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx, accessed February 24, 2014.

³ PJM Interconnection, LLC, 2013b. *PJM Generator Deactivation Summary Sheets*, PJM Interconnection, LLC website http://www.pjm.com/planning/generation-deactivation/gd-summaries.aspx, accessed February 24, 2014.

Currently, in the Marcellus Shale region, there are unfavorable economics to build new combined cycle gas plants. Part of the unfavorable economic situation is the overabundance of gas in the shale area, leading to a much higher supply, than demand for the gas. A higher demand for natural gas is in New Jersey, Baltimore, the ISO New England Region, and parts of the western PJM region, where the demand will total approximately 5.4 GW. In addition, if too many combined cycle plants were to be built it would lead to the plants needing to reduce their capacity factor due to an abundance of energy supply in the Marcellus Shale region. Economically, it is more favorable to send the gas from this region to places where the demand is higher.

Due to the historically volatile nature of natural gas prices, it is possible that gas prices will rise before 2023, when Bell Bend commercial operations would start. A rise in natural gas prices would cause a reduction in natural gas use for power generation. This would make other sources of power, such as Bell Bend, more favorable than natural gas. There is significant uncertainty in predicting natural gas prices as well as the uncertainty predicting the energy supply market as far as 10 years in advance. In addition, the Need for Power in the Bell Bend ROI will extend beyond 2023. The current economic issues and natural gas prices are both short-term issues while the Need for Power will extend well beyond the Bell Bend Commercial Operation Date (COD). Therefore, even an expected expansion of natural gas generation in Pennsylvania may not occur due to economic factors, need for baseload power, or the need to have a diversified generation fuel mix.

New natural gas supplies should not affect the Need for Power in the region near Bell Bend based on the factors mentioned previously. The Bell Bend analyses for Need for Power in the Region of Interest in the ER, and previous RAI responses are still accurate and will not be affected.

COLA Impact:

RAI ENV-27 Question SOC 7335:

ESRP 5.8.2 directs staff to predict the physical demands placed on local public facilities and services (e.g., fire, police, sewer and water) by plant operation and compare these demands with existing facilities and services. In its response to RAI ENV-19 (12-4-12 ML123490007 PPL BNP-2012-281), PPL outlined a series of supplemental water draws necessary for satisfying mitigation requirements set forth by the Susquehanna River Basin Commission. Describe the expected impacts of these supplemental water draws on the potable water supply systems located in Luzerne and Columbia counties. Provide information for each affected major water supply system.

Response:

There are no direct water supply uses at any of the potential consumptive use mitigation sources identified by PPL Bell Bend, LLC (PPL). The Tioga-Hammond project is included in the Susquehanna River Basin Commission's (SRBC) drought Coordination Plan. Under the plan, surplus conservation storage may be utilized to provide Phase II drought assistance. The development of authorized water supply storage to potentially serve the Bell Bend project and/or other water supply needs during drought periods would not be expected to conflict with this use.

The intent of these mitigation water withdrawals from storage would be to replace water in receiving streams during SRBC defined mitigation periods. SRBC mitigation requirements take into account potential impacts of the planned consumptive use on all other basin water users when establishing periods during which mitigation is required. As a result no adverse impacts to potable water supply systems in either Luzerne or Columbia County would be expected as a result of consumptive use mitigation operations.

COLA Impact:

RAI ENV-27 Question SOC 7336:

ESRP 5.8.1 directs staff to identify the potential impacts of plant operation on recreational facilities and to predict the extent and magnitude of the impacts. In its response to RAI ENV-19 (12-4-12 ML123490007 PPL BNP-2012-281), PPL outlined a series of supplemental water draws necessary for satisfying mitigation requirements set forth by the Susquehanna River Basin Commission. Describe the expected impacts on recreational activities resulting from potential water flow, water quality, and pool elevation changes at Moshannon Creek, Cowanesque Reservoir, and the area around the Tioga-Hammond project resulting from the proposed mitigation strategies.

Response:

The following summarizes expected recreational impacts for each of the potential consumptive use mitigation sources identified by PPL Bell Bend, LLC (PPL).

<u>Rushton Mine</u>: As identified in the response to RAI ENV-19¹ response Rushton Mine discharges to Moshannon Creek which is designated as a trout-stocked and migratory fishery, and classified as an impaired waterway due to elevated metals due to abandoned mine drainage. Use of the Rushton Mine for low flow mitigation will result in improved Moshannon Creek water quality and quantity during these low flow periods, which should have a favorable impact on all designated uses including recreational uses of the stream.

<u>Holtwood</u>: No recreational impacts to the Holtwood pond or to the receiving stream below Holtwood would be expected as a result of using this source for consumptive use mitigation. PPL's proposed use of the Holtwood pond would be within the daily operating limits of the reservoir. The Holtwood project discharges directly into the Conowingo reservoir. Any increases in Holtwood releases for consumptive use mitigation would have a de minimis impact on Conowingo pond levels and recreation.

<u>Cowanesque Reservoir</u>: No impacts to recreation either at, or in, the receiving stream below Cowanesque would be expected. Expected use of Cowanesque Reservoir water and the expected pattern of releases would be largely unchanged in comparison to existing operations. These releases currently result in improved flows for recreational use in the receiving stream than would otherwise be present. The rate of drawdown of the Conowingo pond would also be expected to be comparable to existing conditions which would therefore not be expected to adversely impact lake recreational use during drought periods of operation. It should be noted that any operational changes at the Cowanesque Reservoir would be subject to the review and approval of the Army Corps of Engineers (ACOE), who would not take any approval actions without first satisfying National Environmental Policy Act (NEPA) requirements.

<u>Tioga-Hammond</u>: As noted in the response to RAI ENV-19¹, the authorization of a water supply/low flow augmentation function at this reservoir would require a reformulation study by the ACOE. This study would likely consider a number of storage alternatives. The impacts associated with these alternatives would be identified by the ACOE as part of a NEPA analysis.

COLA Impact:

¹ BNP-2012-281, R. R. Sgarro, PPL Bell Bend, LLC to U.S. NRC Document Control Desk, "Bell Bend Nuclear Power Plant Response to RAI ENV-19," dated December 4, 2012.

RAI ENV-27 Question TE 7322:

ESRP Sections 4.3.1 and 4.3.2 direct the staff's description, quantification, and assessment of the impacts of construction of the proposed facilities on terrestrial and aquatic ecosystems. ER Rev 4, Section 4 presents differing amounts for the acreage that would be affected by the construction. Section 4.1.1.1 states that 677 ac would be disturbed by site preparation and construction activities, but later states that 357 ac would be permanently converted and 306 ac (total 663 ac) would be temporarily affected. Section 4.2.1.2 states that 663 ac would be cleared for road, facility construction, laydown and parking uses. Table 4.1-1 lists 357.4 ac of permanent and 305.9 ac of temporary impacts (Total = 663.3 ac). Section 4.2.2.3 describes 369.3 ac of permanent and 299.7 ac of temporary impacts (Total = 669 ac). Section 4.3.2.1 and Table 4.3-1 state that 669 ac would be disturbed by site preparation and construction activities (669 ac agrees with that mentioned in Section 10.2.1), but later state that 369 ac would be permanently converted and 211 ac would be temporarily affected. Provide the correct acreage of the permanent, temporary, and total impacts resulting from the site preparation and construction activities.

Response:

Please see the table below for the explanation of, and corrections to, the acreage values.

COLA Impact:

The BBNPP COLA Part 3 (ER) will be revised as shown below:

4.2.2.3 Physical Effects of Hydrologic Alterations

The construction activities expected to produce the greatest impacts on the surface water bodies occur from:

Reducing the available infiltration area;

♦ Vegetation removal, grading and the placement of permanent structures, paved surfaces and other finished cover of varying permeability on <u>357.4 ac (144.6 ha)</u> 369.3 ac (149.5 ha), including the BBNPP power block foundation, BBNPP cooling tower pads, ESWEMS Retention Pond and Pumphouse, plant access ways, rail spur, permanent parking, BBNPP switchyard, SSES switchyard expansion, and Susquehanna Switchyard 2;

♦ Vegetation removal and grading of <u>305.9 ac (123.8 ha)</u> 299.7 ac (121.3 ha) for the concrete batch plant, temporary sedimentation pond, dredge dewatering pond, topsoil disposal areas, installation of water intake and blowdown pipelines, temporary offices, warehouses, parking and laydown areas, and other miscellaneous temporary construction features; and

• Creation of a temporary sedimentation pond.

ER Section	Acreage in ER	Correct Acreage	Description	Calculation	Notes
4.1.1.1	677	669	Acreage within the Project Boundary that will be disturbed by site preparation and construction activities, excluding areas within the Susquehanna River.	357+306+6 (footnote 1 in Table 4.3-1)	PPL Letter BNP-2013-148 ¹ transmitted to the NRC the correction of this number to 669 acres. The correct acreage within the BB Project Boundary that will be disturbed by site preparation and construction activities is 669 acres. This area encompasses all permanent and temporary impacts including approximately 6 acres of temporary disturbance associated with wetland mitigation. (357 ac +306 ac +6 ac)
4.1.1.1	357	357	Permanently converted to structures, pavement, or other intensively-maintained exterior grounds, or from forested land to scrub/shrub and natural grasses within TL and vehicle, rail and utility bridge corridors	In Table 4.1-1	The correct acreage of land, within the BB Project Boundary, that will be permanently converted is 357 acres. The calculation for this is derived in ER Table 4.1-1. The difference of 0.4 acres between the 357 acres in ER section 4.1.1.1, and the 357.4 acres in ER Table 4.1-1 is due to rounding.
4.1.1.1	306	306	Temporarily disturbed for batch plant, temporary sedimentation pond, dredge dewatering pond, topsoil disposal areas, installation of water intake and blowdown pipelines, temporary offices, warehouses, parking and laydown areas, and other miscellaneous temporary construction features.	In Table 4.1-1	The correct acreage of land within the BB Project Boundary that will be temporarily converted is 306 acres. The calculation is derived in ER Table 4.1-1. The difference of 0.1 acres between the 306 acres in ER section 4.1.1.1, and the 305.9 acres in ER Table 4.1-1 is due to rounding.

¹ BNP-2013-148, R. R. Sgarro, PPL Bell Bend, LLC to U.S. NRC Document Control Desk, "Bell Bend Nuclear Power Plant COLA Part 3 Update and BEMP Errata," dated November 15, 2013.

ER Section	Acreage in ER	Correct Acreage	Description	Calculation	Notes
4.2.1.2	663	663	As described in Table 4.1-1, approximately 663 ac (268 ha) of land will be cleared for road, facility construction, laydown and parking uses.	In Table 4.1-1	The 663 acres describing the land that will be cleared for road, facility construction, laydown and parking uses, in ER section 4.2.1.2, is correct. This number represents the total (permanent plus temporary) amount of impacts from construction. This number does not include the 6 acres of temporary impacts associated with wetlands mitigation activities as noted in footnote 1 of ER Table 4.1-1. The 6 acres not included represents the difference between the 669 acres mentioned in ER section 4.1.1.1 and the 663 acres mentioned in ER section 4.2.1.2.
Table 4.1-1	357.4	357.4	Total acreage of Disturbed Area for Permanent Construction Features	In Table 4.1-1	See calculation in Table 4.1-1
Table 4.1-1	305.9	305.9	Total acreage of Disturbed Area for Temporary Construction Features	In Table 4.1-1	See calculation in Table 4.1-1
Table 4.1-1	663.3	663.3	Total acreage of Disturbed Areas	In Table 4.1-1	The 663.3 acres doesn't include areas within the Susquehanna River affected or temporary impacts from installation of intake/discharge pipeline associated with wetland mitigation which totals 6 acres.
4.2.2.3	369.3	357.4	Acres of permanent impacts	In Table 4.1-1	The area in ER Table 4.1-1 of 357.4 acres for permanent construction impacts is the correct acreage. The 369.3 value in ER Section 4.2.2.3 will be corrected to 357.4 acres to represent the acreage of permanent construction impacts. Please see the markup in "COLA Impact."
4.2.2.3	299.7	305.9	Acres of Temporary Impacts	In Table 4.1-1	The area in ER Table 4.1-1 of 305.9 acres for temporary construction impacts is the correct acreage. The 299.7 value in ER Section 4.2.2.3 will be corrected to represent the acreage of temporary construction impacts. Please see the markup in "COLA Impact."

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ER Section	Acreage in ER	Correct Acreage	Description	Calculation	Notes
4.3.1	369	357	Acreage of undeveloped land that would be permanently converted.	In Table 4.1-1	PPL Letter BNP-2013-148 ¹ transmitted to the NRC the correction of this number to 357 acres. The area in ER Table 4.1-1 for permanent construction impacts is the correct acreage.
4.3.1	211	210.9	Acres of Temporary Impacts (To Certain Features)	From Table 4.1-1	The text in ER Section 4.3.1 states that "Approximately 210.9 ac (85.3 ha) of undeveloped land would be temporarily lost, only, to accommodate the concrete batch plant, temporary sedimentation pond, dewatering basin, topsoil stockpiles and temporary offices, warehouses, and parking and laydown areas." The sum of the areas of only these features equals approximately 211 acres. This area is a subset of the total temporary impacts from construction.
4.3.1	669	669	Acres that will actually be disturbed by site preparation and construction.	In Table 4.1-1	The 669 number represents the total (permanent plus temporary) amount of impacts from construction (663 ac) and also includes the 6 acres of temporary impacts associated with wetlands mitigation activities as noted in footnote 1 of ER Table 4.1-1.
Table 4.3-1	369	369	Permanent losses for impacts to plant communities and other habitats.	In Table 4.3-1	The 369 acres is the sum of permanent impacts to plant communities per the categories presented in ER Table 4.3-1 and is correct. This number does not represent the 357 acre summation of permanent construction features.
Table 4.3-1	669	669	Total impacts to plant communities and other habitats for all land cover types	In Table 4.3-1	The 669 acres is the sum of the total plant communities and other habitats impacts plus the impacts to developed land cover types.

¹ BNP-2013-148, R. R. Sgarro, PPL Bell Bend, LLC to U.S. NRC Document Control Desk, "Bell Bend Nuclear Power Plant COLA Part 3 Update and BEMP Errata," dated November 15, 2013.

RAI ENV-27 Question TE 7346:

ESRP Section 4.3.1 directs the staff's description, quantification, and assessment of the impacts of construction of the proposed facilities on the terrestrial ecosystem. ER Rev 4, Section 4.3.1 states that about 344 ac of non-wetland terrestrial habitat would be permanently lost due to construction. However, Table 4.3-1 indicates about 368 ac of non-wetland terrestrial habitat would be permanently lost due to construction. Provide the definitive acreage of permanent impacts to non-wetland terrestrial habitats from construction.

Response:

The description of permanent impacts to the terrestrial ecosystem associated with Bell Bend Nuclear Power Plant (BBNPP) construction is accurately represented in the BBNPP Combined License Application (COLA) Part 3, Environmental Report (ER) Table 4.3-1. The total area of permanent impacts to terrestrial habitats is 369.3 acres (149.4 ha) as described in ER Table 4.3-1. The value 344.1 ac (139.3 ha) is incorrect and will be changed to 369.3 ac in a future revision of the BBNPP COLA ER.

COLA Impact:

The BBNPP COLA Part 3 (ER) will be revised as shown below:

4.3 ECOLOGICAL IMPACT

4.3.1 Terrestrial Ecosystems

Construction impacts to non-wetland terrestrial habitats, only, will entail a permanent loss of <u>369.3 ac (149.9 ha)</u> 344.1 ac (139.3 ha), and temporary disturbance of 208.9 ac (84.5 ha) as shown in Figure 4.3-2 and Table 4.3-1. Permanent terrestrial habitat losses are small compared to the 4,390,530 ac (1,776,784 ha) of terrestrial habitat in the region as shown in Table 2.3-45. Wetlands comprise approximately 1.25 ac (0.51 ha) of permanently lost terrestrial habitat, as shown in Figure 4.3-3. Permanent wetland losses are also small compared to the 83,797 ac (33,911 ha) of wetlands in the region.

RAI ENV-27 Question TE 7351:

ESRP Section 4.3.1 directs the staff's description, quantification, and assessment of the impacts of construction of the proposed facilities on the terrestrial ecosystem, and directs staff to describe mitigative actions. The response to RAI TE-37 (BNP-2012-208) (August 29, 2012) states that "The closure or 'vacating' of this small section of Confers Lane is a legislative act that must be approved by the Salem Township Board of Supervisors.....PPL fully anticipates that the section of Confers Lane in the area of the proposed wetlands mitigation plan will be vacated as part of project permitting activities, and that the wetlands mitigation as proposed will be implemented when the plant is constructed. As a result, there is no proposed substitute compensatory mitigation proposed." State the decision of Salem Township has not rendered a decision, please state whether PPL would develop suitable substitute mitigation in the event Salem Township does not decide to close the section of Confers Lane in the area of wetlands mitigation in the proposed wetlands mitigation.

Response:

Existing wetlands on either side of Confers Lane are hydrologically similar and were likely connected prior to road construction. The abandonment of Confers Lane presents an opportunity to remove the road bed, re-establish a connection between existing EV wetlands, and create 0.36 acres of additional forested wetland habitat. Tables 2 and 3 from the JPA Rev. 1 Mitigation Narrative, shown below, show that the net gain of both wetland and stream resources, resulting from mitigation, exceeds the compensatory mitigation required by the Army Corps of Engineers (ACOE) and the Pennsylvania Department of Environmental Protection (PADEP). The Confers Lane Removal mitigation project results in 0.36 acres of wetland creation and 0.04 acres of additional wetland enhancement. Without the 0.36 ac. Confers Lane mitigation project, the net gain in mitigation is 6.49 acres (6.85 ac.– 0.36 ac.) for DEP (1.39 ac. required), and 12.92 acres (13.28 ac. – 0.36 ac.) for the ACOE (1.76 ac. required). No additional mitigation would be required.

DEP Impacts and Mitigation Summary	PFO	PSS	PEM	Total Wetland	Total Stream
	(ac.)	(ac.)	(ac.)	(ac.)	(lf)
Project Impacts	1.58	0.00	0.88	2.57	997
Project Impacts Requiring Mitigation*	0.51	0.00	0.88	1.39	742
DEP Minimum Mitigation Requirement	0.51	0.00	0.88	1 20	742
(1:1)	0.51	0.00	0.88	1.55	742
Wetland Creation and Stream	8 56	0.00	0.00	8 56	5012
Creation/Enhancement	0.50	0.00	0.00	0.50	5012
Mitigation Impacts	0.08	0.00	0.25	0.33	2799
Net Wetland Creation and Stream	0 4 0	0.00	0.25	0 72	2212
Creation/Enhancement**	0.40	0.00	-0.25	0.25	2215
Net Gain	7.97	0.00	-1.13	6.85	1471

Table 2. Summary of Wetland Impacts and Mitigation Re	equirements for DEP
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*Although DEP considers the entire bridge span a permanent wetland and stream impact, mitigation is only required for the bridge piers.

**DEP does not count wetland enhancement towards mitigation acreage.

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				Total	
ACOE Impacts and Mitigation Summary	PFO	PSS	PEM	Wetland	Total Stream
	(ac.)	(ac.)	(ac.)	(ac.)	(lf)
Project Impacts	0.51	0.00	0.74	1.25	742
ACOE Minimum Mitigation Requirement (2:1 PFO, 1.5:1 PSS, 1:1 PEM)	1.02	0.00	0.74	1.76	742
Wetland and Stream Creation and Enhancement	15.36	0.00	0.00	15.36	5012
Mitigation Impacts	0.08	0.00	0.25	0.33	2799
Net Wetland Creation and Stream Creation/Enhancement	15.28	0.00	-0.25	15.03	2213
Net Gain	14.26	0.00	-0.99	13.28	1471

Table 3. Summary of Wetland Impacts and Mitigation Requirements for ACOE

COLA Impact: