Gary Petrewski
Environmental Manager

PPL Nuclear Development, LLC
Two North Ninth Street
Allentown, PA 18101-1179
Tel. 610.774.5996 Fax 610.774.2618
gpetrewski@pplweb.com

June 28, 2011

Mr. James Richenderfer, Ph.D., P.G.
Director, Technical Programs
Susquehanna River Basin Commission
1721 N. Front Street
Harrisburg, PA 17102-2391

BELL BEND NUCLEAR POWER PLANT
RESPONSE TO SRBC COMMENTS ON THE BBNPP
WATER MONITORING PLAN
BNP-2011-124 Docket No. 52-039

References: 1) James Richenderfer, Susquehanna River Basin Commission, to T.L. Harpster, PPL Bell Bend LLC., "Bell Bend Nuclear Power Plant; Water Monitoring Plan", dated May 17, 2011.

Please find attached the PPL Bell Bend, LLC (PPL) responses to the four (4) SRBC comments on the Bell Bend Nuclear Power Plant Water Monitoring Plan (Reference 1). In addition to each response, we are providing proposed changes to applicable sections of the BBNPP Water Monitoring Plan. With notification of your acceptance of our responses and proposed changes, we will send you a complete revision to the Bell Bend Nuclear Power Plant Water Monitoring Plan that implements the proposed changes.

Should you or your staff have any questions about these comment resolutions or proposed changes please contact Michael Detamore at 610.774.6385 or mbdetamore@pplweb.com.

Respectfully,

Gary Petrewski

GP/kw

Enclosure: 1) Responses to SRBC Comments on the BBNPP Water Monitoring Plan and Proposed Plan Changes cc: (w/ Enclosure)

Ms. Stacey Imboden
Senior Project Manager
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Rockville, MD 20852

Ms. Jamie Davis
Office of Environmental Programs (3EA30)
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029

Mr. Tom Shervinskie
Pa Fish & Boat Commission
450 Robinson Lane
Bellefonte, PA 16823

Ms. Jennifer Kagel
United States Fish & Wildlife Service
Pennsylvania Field Office
315 S. Allen St. #322
State College, PA 16801

Mr. Eugene Trowbridge
Pa Dept Environmental Resources
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18711

Ms. Amy Elliott
U.S. Army Corps of Engineers - Baltimore District
State College Field Office
1631 South Atherton Street, Suite 102
State College, PA 16801

Ms. Paula B. Ballaron
Susquehanna River Basin Commission
1721 North Front Street
Harrisburg, PA 17102-0425

Mr. Thomas W. Beauduy
Susquehanna River Basin Commission
1721 North Front Street
Harrisburg, PA 17102-0425

Enclosure 1

Responses to SRBC Comments on the BBNPP Water Monitoring Plan and Proposed Plan Changes

Responses to SRBC Comments on the BBNPP Water

Monitoring Plan and Proposed Plan Changes

Note: BBNPP Water Monitoring Plan changes are noted as strikethrough for text deletions and underline for text additions.

1. Comment: In Attachment 2 on page 2-2 for monitoring point B, in the event that the meters of all the Raw Water Supply System pumps are out of service, the daily surface water withdrawal calculation should use the "highest daily flow recorded at point B" instead of the "last day of data with the flow instrumentation operating."

   Response: This is an acceptable approach because the RWSS flow is relatively small when compared to total water withdrawal and this backup should be seldom used because all RWSS flow meters would have to be out of service before this backup method is used. It may, however, lead to an artificially small increase in consumptive use for that day. Only two RWSS pumps will operate at the same time; we have stated the Plan Change accordingly.

   Plan Change, Attachment 2:

   Monitoring Point B

   In the event <u>the</u> ~~any~~ meter on the discharge line of an operating Raw Water Supply System (RWSS) pump is out of service, the flow at that meter will be assumed to be the <u>same</u> flow ~~of~~ <u>as</u> the flow at the meter of the other operating pump.

   In the event the meters of <u>both</u> ~~all~~ operating RWSS pumps are out of service, the daily <u>RWSS</u> surface water withdrawal shall be calculated as follows:

   > Initially the flow will be taken to be the ~~same as the last day of data with the flow instrumentation operating~~ <u>highest daily flow recorded at point B</u>; and
   >
   > Later, with sufficient plant operating data, the flow will be the historical daily average for that month.

2. Comment: In Attachment 2 on page 2-2 for monitoring point C, the backup method acceptable to the Commission is the lowest daily average measured at point C. The rationale for adding and

subtracting the cooling tower blowdown, albeit measured at different times, is not clear. Similarly, the rationale for adding and subtracting the treated water waste discharge, measured at point D, is not clear, particularly since monitoring point D is downstream from monitoring point C and treated water waste will not be discharged if the meter at monitoring point D is not functioning.

Response: PPL has reviewed the approach proposed by the SRBC, and is concerned that it could lead to a minimum plant discharge at a time when the total consumptive use is relatively high. This could result in an artificially high consumptive use for that day that could exceed the maximum consumptive use allowed. Alternatively, we believe your concern regarding ambiguity can be resolved by using the flowing approach. The backup method we propose uses measured Cooling Tower Blowdown flow from Monitoring Point E (see 3, below) plus the average calculated daily flow for that month from the Plant Waste Water Discharges. The Plant Waste Water Discharge flow is calculated on a daily basis by subtracting Cooling Tower Blowdown flow at Monitoring Point E from the Combined Waste Water Retention Basin flow at Monitoring Point C. From this daily calculation a daily average value can be derive for each month of the year.

Plan Change:

Monitoring Point C

In the event the meter at Monitoring Point C is out of service, the total daily flow at Monitoring Point C shall be calculated as follows:

Daily discharge flow from the Combined Waste Water Retention Basin to the river EQUALS

> That Day's measured CWS cooling tower blowdown flow as determined for Point E
>
> PLUS ~~That day's measured treated water discharge flow (Monitoring Point D)~~the calculated average daily flow for that month from the Plant Waste Water Discharge.
>
> ~~PLUS the last day of Monitored Point C daily flow~~
>
> ~~MINUS the last day's daily measured CWS cooling tower blowdown flow (see above)~~
>
> ~~MINUS the last day's daily measured treated waste water discharge flow (Monitoring Point D)~~

3. Comment: The flow indicator for the cooling tower blowdown should be a monitoring point for the "Water Monitoring Plan for BBNPP," and a backup method should be established in the event that the flow indicator malfunctions.

   Response: The cooling tower blowdown will be added as a monitoring point to the Water Monitoring Plan for BBNPP. The backup method to estimate blowdown will be based on using information supplied by the cooling tower vendor including cooling tower evaporation curves to estimate cooling tower evaporation and drift loss. The combined loss from the two towers will be subtracted from the makeup flow from monitoring point A to determine cooling tower blowdown flow.

   Note: Cooling tower evaporation curves from a vendor are not available at this time. These curves will be provided to the SRBC when available.

   Plan Change, Page 1:

   Monitoring Points

   PPL will monitor water flow at Monitoring Points A, B, C, D ~~and D~~ and E as discussed below and identified on the BBNPP Water Flow Diagram (Attachment 1).

   Plan Change, Page 2:

   Monitoring Point E

   The cooling tower blowdown comes directly off the Circulating Water System pump discharge common to both cooling towers and is directed to the Combined Waste Water Retention Basin. This flow will be monitored as Point E.

   Plan Change, Attachment 1:

   Refer to attached revised diagram which includes cooling tower blowdown flow as Monitoring Point E.

   Plan Change, Attachment 2:

   Monitoring Point E

   In the event the meter at Monitoring Point E is out of service, the total daily flow at Monitoring Point E shall be calculated as follows:

   Daily blowdown flow from the cooling towers to the Combined Waste

Water Retention Basin EQUALS

That Day's measured Circulating Water System Makeup Water Supply flow (as determined for Point A)

MINUS the cooling tower evaporation loss for that day from the cooling tower curves

MINUS the cooling tower drift loss for that day

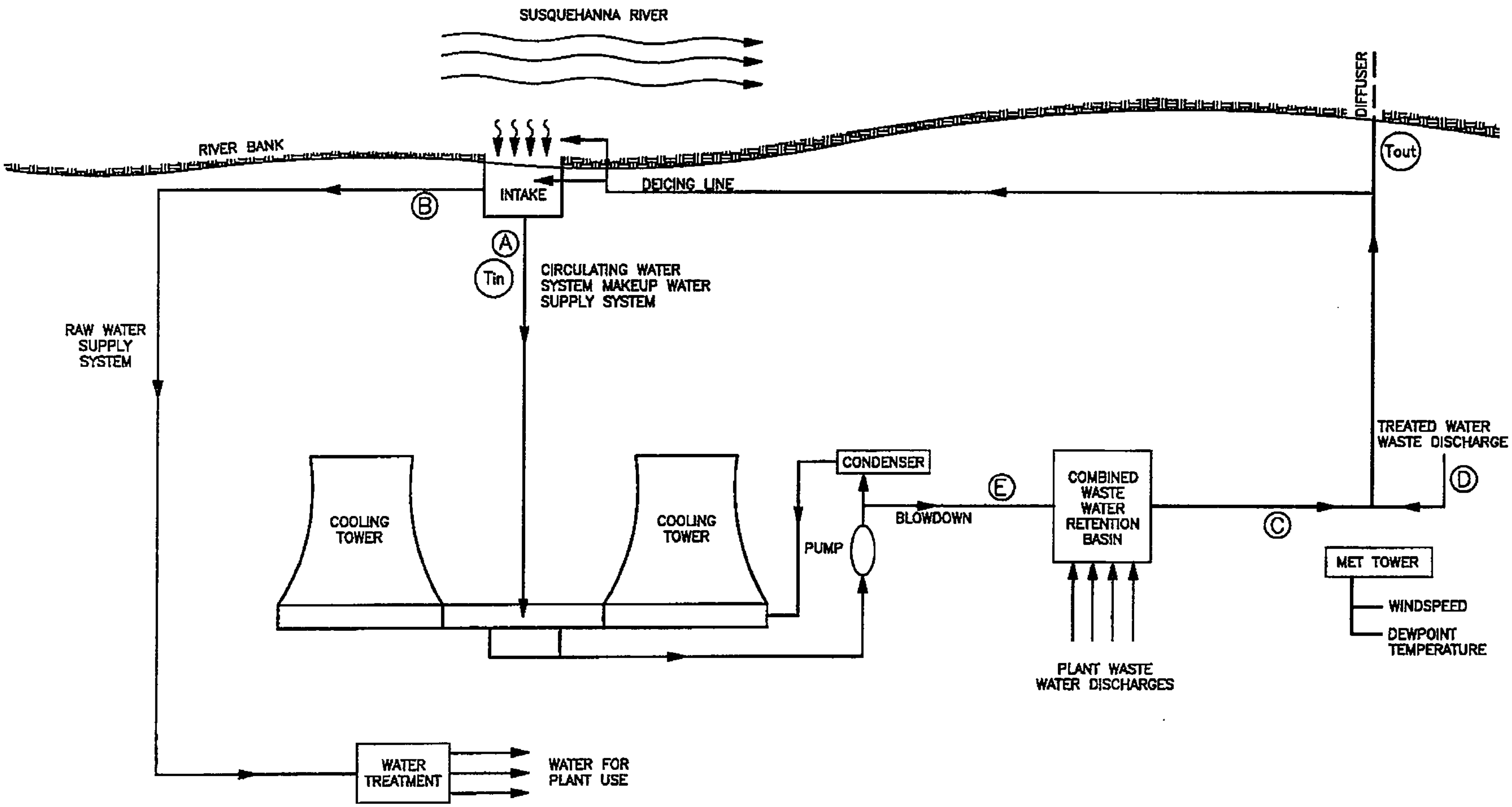
4. Comment: In Attachment 2 on page 2-2, the maximum in-river evaporation is indicated to be 88,000 gallons per day (gpd) in April. In PLE-0024890 dated February 19, 2010, regarding the Susquehanna Steam Electric Station (SSES) Permanent Water Monitoring System, the maximum in-river evaporation occurs in October. The Commission questions the difference in the time of peak in-river evaporation given that the meteorological conditions are similar. The Commission requires further explanation of the method used to calculate in-river evaporation including why the calculations for BBNPP appear to differ from the SSES calculations. This comment also applies to the table on page 4-3 of Attachment 4.

   Response: The exact same methodology was used to estimate in-river evaporation for both SSES and BBNPP. The SSES data were based on ambient conditions from August 2004 through July 2007 – a period of three (3) years. The BBNPP data were based on ambient conditions from January 1977 through July 2007 – a period of thirty (30) years. It should be noted that this variance has little impact on consumptive use given that in-river evaporation generally represents well less than one (1) percent of the respective plants' consumptive use. Given the extensive data period used for BBNPP, no change is planned for the BBNPP Water Monitoring Plan.

   Plan Change:

   None

ATTACHMENT 1
Bell Bend Nuclear Power Plant
Water Flow Diagram



NOTE: SEE APPLICATION DATED MAY 13, 2009, ATTACHMENT 4, ATTACHMENT CU-4 FOR DETAILED WATER USE DIAGRAM