G.J. Kuczynski
Director – Engineering, Procurement, Construction

PPL Bell Bend, LLC
2 North Ninth Street
Allentown, PA 18101
Tel. 610.774.6327 FAX 610.774.6092
gjkuczynski@pplweb.com

July 30, 2010

Mr. Jim Richenderfer
Acting Chief, Water Resources Management
Susquehanna River Basin Commission
1721 North Front Street
Harrisburg, PA 17102-2391

BELL BEND NUCLEAR POWER PLANT
IFIM AND AQUATIC IMPACT STUDIES
WORKPLAN UPDATE
BNP-2010-180 Docket No. 52-039

References: 1) BNP-2010-103, "Study Plan to Assess the Potential Effects of the Bell Bend Project on Aquatic Resources and Downstream Users", dated April, 2010.

2) BNP-2010-142, "IFIM and Aquatic Impact Studies Workplan Update", dated May 26, 2010.

On April 29, 2010 PPL Bell Bend, LLC (PPL) submitted to the Susquehanna River Basin Commission (Commission) a study plan (Reference 1) that proposed certain studies to be performed during 2010 to evaluate the potential effects that BBNPP's operations might have on the aquatic biota and water quality in the river (Reference 1). As a result of field work completed from May 5-7, 2010, Section 6.3 (pages 49 – 51 of the original study plan) was rewritten. This included an updated narrative summarizing the Bell Bend Project PHABSIM Transect Selection that occurred and a revised Figure 6.4 showing approximate location of each transect.

Even though the Commission and resource agencies have not yet completed their review of the submitted study plan, conditions in the river have been such that PPL has collected river data at both the high flow target of 10,000 cfs and the medium flow target of 5,000 cfs in order to ensure that the data collection opportunities for 2010 would not be missed.

On Monday, July 12, 2010 SRBC requested a site visitation for July 21, 2010. Participants included individuals from PPL BB, Ecology III, Normandeau Associates, ERM, Thomas R. Payne & Associates, PAFBC, Commission, and Anchor QEA (consultant to the Commission).

The general consensus of the group was, based on the information in hand, that the existing transects sufficiently represented the range of physical habitat conditions in this portion of the Susquehanna River for the purpose of hydraulic and habitat modeling. There was, however, concern that portions of the river consisting of shallower bedrock shoal were not incorporated into the representation. Specifically, one section between transects P1 and P2 was shallower and faster than the pool habitat upstream and downstream, and was characterized by abundant low bedrock ridges running nearly perpendicular to the direction of flow. In addition, the northern side of the river between Goose Island and Hess/Rocky islands also had similar bedrock ridges (here running nearly parallel to flow), features which were not incorporated into either transect G2 upstream or G3 downstream.

To ensure comprehensive coverage of habitat variability in the project study area, we are adding two more transects, one each in the two areas, for a total of twenty-one transects. Data to be collected will be detailed bottom profile, substrate and cover, water velocity measurements, and low flow water surface elevation in relation to adjacent transects.

As a result of field work completed on July 21, 2010, Section 6.3 (pages 49 – 51 of the original study plan) have again been rewritten (See Enclosure 1). This includes an updated narrative summarizing the Bell Bend Project PHABSIM Transect Selection that occurred and a revised Figure 6.4 showing approximate location of each transect.

Should the Commission have any questions regarding the attached, please contact Bradley A. Wise, Environmental Permitting Supervisor, at 610-774-6508.

Respectfully,

George J. Kuczynski

GJK/kw

Enclosure 1) Revision (Rev 2) of Section 6.3 of "Study Plan to Assess the Potential Effects of the Bell Bend Project on Aquatic Resources and Downstream Users"

cc: (w/ Enclosures)

Mr. Michael Canova
Project Manager
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Rockville, MD 20852

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

Mr. Mark Hartle
Pa Fish & Boat Commission
450 Robinson Lane
Bellefonte, PA 16823

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. Larry Miller
United States Fish & Wildlife Service
Mid-Atlantic Fisheries Res. Office
P.O. Box 67000
Harrisburg, PA 171 10-9299

Ms. Susan Weaver
Pa. Dept of Environmental Resources
Water Resources Planning
P.O. Box 2063
400 Market Street, 2nd Floor
Harrisburg, PA 171 05-4785

Mr. Eugene Trowbridge
Pa. Dept Environmental Resources
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 1871 1

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

Ms. Paula Ballaron, P.G.
Director, Regulatory Program
Susquehanna River Basin Commission
1721 North Front Street
Harrisburg, PA 171 02-0425

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

Enclosure 1

Revision 2 of Section 6.3 of BNP-2010-103, "Study Plan to Assess the Potential Effects of the Bell Bend Project on Aquatic Resources and Downstream Users", dated April, 2010.

6.3. HABITAT REPRESENTATION AND TRANSECT SELECTION

Development of a relationship between suitable aquatic habitat and river flow for selected species and life stages within the IFIM/PHABSIM framework depends on the measurement or estimation of physical habitat parameters (depth, velocity, substrate/cover) within the study reach. Generally, the lateral and longitudinal distribution of the values of these parameters at given river flows are determined at points along transect lines across the stream channel, positioned to account for spatial and flow-related variability. A variety of hydraulic modeling techniques can be used to estimate water depth and velocity as a function of river flow; substrate and cover values are generally fixed at a given point. With physical habitat thus characterized for a range of river flows, the suitability of the habitat (for a particular species and life stage) at each point is scaled from zero to one, usually by multiplying together the corresponding suitability values for depth, velocity, and substrate from the appropriate HSC curves. These point estimates of suitability are then used to weight the physical area of the study represented by each point, and the weighted areas are accumulated for the entire study reach to produce the index of useable habitat (WUA) as a function of river flow for each species and life stage.

This study will use the mesohabitat typing, or habitat mapping, approach originally described by Morhardt *et al.* (1983) and summarized by Bovee *et al.* (1998). In this design, mesohabitats (broadly defined habitat generalizations) are mapped over the entire study reach such that each area of the waterway is characterized by a general habitat type, and the total length, or proportion, of the study reach assigned to each mesohabitat type is determined.

An initial boat-based site visit in early September 2009, when the prevailing river flow was approximately 3,400 cfs, provided information for the classification of the major mesohabitat types within the study area. Figure 6-4 shows the four major mesohabitat types found: pool, run/glide, riffle, and narrow channel. Preliminary transect locations were strategically selected to both represent the proportion of each habitat type in the study area, and to reflect the habitat variability within the habitat type (deep, shallow, split channel, *etc.*).

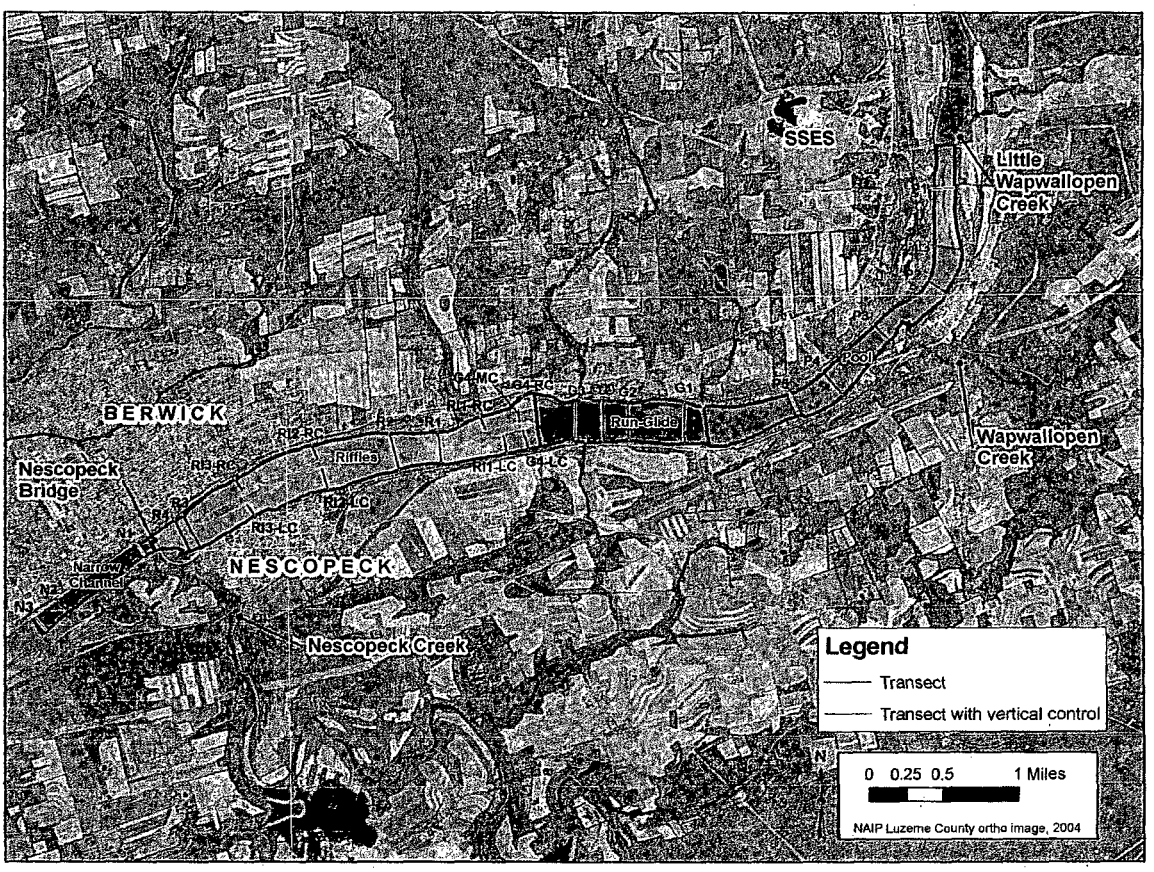

Figure 6-4 The four major mesohabitat types in the aquatic habitat study reach
The two added transects (P12 and G23) are shown in red.

Table 6-4 Mesohabitat types for the Susquehanna River near the BBNPP

Mesohabitat Type	Description
Pool	Deep, slow water with turbulent flow (if present) only near the head. Retains standing water as discharge approaches zero.
Run/Glide	Shallow, fast water with smooth or laminar flow and little or no exposed substrates. Common in tailouts of deeper pools or interspersed with runs. Also referred to as flatwater or smooth run.
Riffle	Shallow with gravel, cobble, or boulder hydraulic control, fast water with turbulent flow. Possible exposed substrate, usually boulder.
Narrow Channel	Deep, fast water with turbulent flow and infrequent exposure of bedrock, boulders, or coarse substrate

Actual transect placement took place between May 5 and 7, 2010 concurrent with high flow data collection. During transect placement the field crew first located the proposed transect endpoints using GPS. In most instances, transects were positioned as close as possible to the preliminarily selected locations. Five pool transects (P1 to P5) were selected to reflect variation in channel width and curvature.

Four glide transects (GI to G4) were placed within the "run/glide" habitat type, including one to represent the island and back channel at the lower end of that section. Three riffle transects (R1 to R3) represent single-channel areas, again reflecting variation in stream width and depth, and another three (RI1 to RI3) were placed to represent the split-channel areas created by islands.

A final three transects (N1 to N3) were selected to represent the "narrow channel" area downstream of Nescopeck Creek.

There were three exceptions during transect placement:

1) Pool P5 was moved upstream due to property and bank stabilization concerns along the left bank;

2) Glide G4 transect was intended to cross the tip of a mid-channel island and incorporate a small island near the right bank. Due to potential private property concerns the right channel portion of the transect was moved downstream. In addition, in order to maintain similar water surface elevations between channels, the remainder of the transect was also relocated, resulting in the inclusion of two islands and three channels. The final location of this transect is near the boundary of run/glide and riffle habitat, but based on observations at high flow the transect appears to incorporate both habitat types;

3) An additional riffle transect was added (R4) below a series of old bridge abutments to incorporate potential smallmouth bass spawning and rearing habitat.

On July 21 a site visit by representatives of the SRBC, PFBC, and Anchor QEA (consultant to the SRBC) occurred. As a result of the low flow conditions present (about 2,000 cfs), portions of the river consisting of shallower bedrock shoal that could not be observed at the higher monitoring flows of 5,000 cfs and 10,000 cfs could now be seen. Specifically, one section between transects P1 and P2 was shallower and faster than the pool habitat upstream and downstream, and was characterized by abundant low bedrock ridges running nearly perpendicular to the direction of flow. In addition, the northern side of the river between Goose Island and Hess/Rocky islands also had similar bedrock ridges (here running nearly parallel to flow), features which were not incorporated into either transect G2 upstream or G3 downstream.

There were two transects added to the study as a result of the above observations made on July 21,2010 jointly with the SRBC at low river flow:

1) An additional transect (P12) in the pool habitat between transects P1 and P2, shown in Figure 6-4.
2) An additional transect in the run/glide habitat between transects G2 and G3 (G23), also shown in Figure 6-4.

Field data including substrate, cover, depth and velocities will be collected at these new transects at the low target river flow of 2000 cfs. Conditions at other flows will be determined at these new transects by hydraulic modeling within the PHABSIM framework.