

December 7, 2005

Testimony of Eric J. Epstein* before the
Department of Environmental Protection:
Connectiv's Mid-Merit LLC Proposed Combined Cycle
Electric Generating Facility,
Peach Bottom Township, York County

According to the Environmental protection Agency (EPA), the burning of natural gas in combustion turbines requires water. Natural gas-fired boiler and combined cycle systems do require water for cooling purposes. Connectiv's Mid-Merit power plant will remove water from the Susquehanna River, and it is likely fish and other aquatic life will be harmed, animals and people who depend on these aquatic resources will also be affected.

Millions of fish (game and consumable), fish eggs, shellfish and other organisms are sucked out of the Lower Susquehanna River and killed by nuclear power plants annually. Now large water consumers, including Connectiv, are compelled to inventory mortality rates and identify species of aquatic life affected by water intakes. Older power plants like Brunner Island and the Peach Bottom Atomic Power Station (PBAPS 2 & 3) have the option of implementing fish-protection measures such as screens with fish return systems or traveling screens with backwash devices.

** Mr. Epstein is Coordinator of the EFMR Monitoring group, a nonpartisan community based organization established in 1992. EFMR monitors radiation levels at Peach Bottom and Three Mile Island nuclear generating stations, invests in community development, and sponsors remote robotics research.*

He is also the Chairman of Three Mile Island Alert , Inc., a safe-energy organization based in Harrisburg, Pennsylvania and founded in 1977. TMIA monitors Peach Bottom, Susquehanna, and Three Mile Island nuclear generating stations.

It is hard to know just what the impact on fisheries is, because cool water intakes have been under the radar screen compared to some types of pollution, said Pennsylvania Fish and Boat Commission aquatics resources chief Leroy Young. But any time you have a man-induced impact on top of what nature is doing, you're affecting the ecosystem, Young said

(Ad Crable, *Intelligencer Journal*, January 15, 2005).

A former Peach Bottom nuclear plant employee said he was "sickened" by the large numbers of sport fish he saw sucked out of the Susquehanna. "When the water comes in, fish would swim in through tunnels and swim into wire baskets," said the man who lives in southern Lancaster County and asked that his name not be used. "There were hundreds and hundreds of fish killed each day. Stripers and bass and walleye and gizzard shad and all kinds of fish. It took a forklift to carry them out" (*Intelligencer Journal*, January 15, 2005).

Just last week, the the Department of Environmental Protection has issued a notice of violation to PPL for a fish kill that occurred because of a sharp increase in the temperature of the water discharged into the Susquehanna River from the company's Brunner Island electric generating facility. Hundreds of fish were killed from minnows to bass to shad.

"PPL took a circulation pump off line and that resulted in a rapid and dramatic rise of about 20 degrees in the temperature of the water flowing to the river from the company's discharge channel," DEP Southcentral Regional Director Rachel Diamond said. "PPL exceeded the thermal limits in their discharge permit and violated sections of Pennsylvania's Clean Streams Law."

Question 1: Will the Department of Environmental Protection require an Environmental Impact Statement ?

Question 2: How many of fish (game and consumable), fish eggs, shellfish and other organisms will be harmed or killed annually?

Question 3: What impact will the plant have on shad ladders?

Question 4: What impact will the plant have on sport and commercial fishing?

Combustion turbines do not produce any water discharges. However, pollutants and heat build up in the water used in natural gas boilers and combined cycle systems. When these pollutants and heat reach certain levels, the water is often discharged into lakes or rivers. This discharge usually requires a permit and is monitored.

On July 9, 2004, the Environmental Protection Agency (EPA) issued the Final Phase II rule implementing Section 316(b) of the Clean Water Act: The first national standards for reducing fish kills at existing plants. “The rule established requirements for reducing adverse environmental impacts from the entrainment and impingement of aquatic organisms living power plants” (*Exelon Annual Report*, Financial information, Annual Report, p, 187.)

The regulatory action is the result of over ten years of litigation by environmentalists and six states -- Pennsylvania not among them. The coalition successfully argued that the EPA failed to implement the Clean Water Act. The regulations are due to take effect on September 7, 2005.

Question 5: What will DEP’s reporting requirements be in regard to onsite and offsite monitoring? How frequent will these take place? Who will conduct the tests? Where will the results be published?

Question 6: How will DEP guard against masking results from the Peach Bottom Atomic Power Station and other sources of water contamination?

Power plants use millions of gallons daily for coolant and to perform normal industrial applications. There are three nuclear generation stations on the Susquehanna River. Two plants, with three units, are located on the Lower Susquehanna, have the capacity to draw in as much as half the flow of a River in a day. The Three Mile Island Nuclear Generating Station (TMI-1) and the Peach Bottom Atomic Power Stations are large consumers of water on the Lower Susquehanna and began operating in 1974.

According to the California Energy Commission, conventional power plants consume the following amounts of water (through evaporative loss, not including water that is recaptured and treated for further use):

Water Consumption: Fossil Power Plants

Technology	gallons/kWh	liters/kWh
Nuclear	0.62	2.30
Coal	0.49	1.90
Oil	0.43	1.60
Combined Cycle Gas	0.25	0.95

Three Mile Island-1 and Peach Bottom-2 & 3 routinely return water to the River at temperatures in excess of 110 degrees. It is not uncommon for the plants to discharge chlorinated water (necessary to minimize bacterial contamination of turbines) or Clamtrol (chemical agent used to defeat Asiatic clam infestation) directly into the River.

Brunner Island, a coal-fired plant in East Manchester Township, was built between 1961-69, and according to PPL spokeswoman Constance Walker, the plant withdraws 744 million gallons of water a day.

According to PPL's **2003 CERES Report**, *Summary of 2003 Corporate Environmental Performance*:

PPL's water discharge performance in 2003 showed improvement over 2002 when the Brunner Island power plant in Pennsylvania incurred a \$2,900 penalty for a fish kill...The Brunner Island power plant has had a variance in its water discharge permit for many years. However, the Pennsylvania Department of Environmental Protection is concerned about the thermal effects of the plant's water discharge on the Susquehanna River and has now required PPL to submit operating data to support continuation of the variance. PPL is continuing the data collection in 2004.

Question 7: How much water will be drawn form the Susquehanna River on a daily basis?

Question 8: How much water will be returned?

Question 9: Will the water be treated with chemicals?

Question 10: How does Connectiv plan to defeat Asiatic clam and/or mussel infestation?

When it comes to water consumption, fish kills, thermal inversion and effluent discharges, power plants are sometimes viewed as a benign monster. During the 2002 drought, water shortages on the Lower Susquehanna reached critical levels, yet these power plants were exempted from water conservation efforts.

A sample of the magnitude of the amount of water used at nuclear power plants is readily evidenced at PPL's Susquehanna Steam Electric Station (SSES) located on the Susquehanna River in Luzerne County. The plant draws 40.86 million gallons per day from the Susquehanna River. For each unit, 14.93 million gallons per day are lost as vapor out of the cooling tower stack while 11 million gallons per day are returned to the River as cooling tower basin blow down.

On average, 29.86 million gallons per day are taken from the Susquehanna River and not returned. This data is public information, and can be easily referenced by reviewing PPL's Pennsylvania Environmental Permit Report.

These consumption levels are achieved at the SSES with a closed-cycle cooling system which recycles intake water; thereby, reducing the volume of water taken into the plant. Peach Bottom does not use a closed-cooling system, while TMI vaporizes large quantities of coolant and also discharges water as blow down.

The Peach Bottom Atomic Power Station uses and treats potable water from the Susquehanna River. The average daily usage is anywhere from 280,000 to 360,000 gallons per day.

Water shortages on the Lower Susquehanna reached critical levels in the summer of 2002. For the month of August 2002, 66 of 67 Pennsylvania counties had below normal precipitation. On August 9th, 2002, Governor Schweiker extended the drought emergency for 14 counties across Southcentral and Southeast Pennsylvania.

Precipitation deficits at or exceeding 10.0 inches were recorded in several counties, included **Dauphin County**. The greatest deficit of 14.6 inches was in **Lancaster County**, and departures from normal precipitation range included 0.0 inches in **York County** (Source: Pennsylvania Department of Environmental Protection, *Drought Report and Drought Conditions Summary*, August-September, 2002). Peach Bottom is located in Lancaster and York Counties while Three Mile Island is situated in Dauphin and Lancaster Counties.

Peach Bottom did not “conserve” water until the plant was forced close to address a massive fish kill. On August 30, 2002, high differential pressures on the circulating water intake screens forced the manual shut down of Peach Bottom. “The problem was caused by a sudden surge in the amount of fish (Gizzard Shad) that entered the intake canal and clogged the screens. Unit 3 power was returned to 100 percent following cleaning of the circulating water screens and restating of the 3’A’ circulating water pump” (Source: Nuclear Regulatory Commission, IR-50-277/02-05; 50-278/02-05).

Question 11: What actions will Connectiv take to curb water consumption during periods of conservation and/or drought?

Question 12: During the drought in the summer of 2002, almost all of Peach Bottoms and TMI’s electricity were shipped out of the region and out of state. How much (%) of the energy generated by Connectiv’s plant will be consumed in the region? What percentage will be consumed within Pennsylvania?

Question 13: Since Connectiv will be using wires and transmission resources constructed and maintained from Pennsylvania rate payers, how much will the Company contribute annually to maintain the T&D infrastructure?

Obviously Connectiv's proposed plant will require a considerable amount of acreage and infrastructure to support its activities. Part of "smart growth" is developing land in concert with communal needs and resources.

Currently there is a Texas Eastern compressor station northeast of the proposed plant in Marietta, Lancaster County.

Question 14: Will the plant require the construction of a pipeline(s)?

Question 15: Is the tract of land Connectiv seeks to develop, part of a sub-basin or watershed? Is the land close to (or on) an environmentally sensitive area containing wetlands, flood plains, alluvial soils or riparian buffers?

Question 16:

In May 2002, PPL refused to pay \$2.2 million in back property taxes to the Northeastern School District. Officials in Northeastern School District, where more than 20 percent of the residents live below the poverty line, proposed cutting textbooks, maintenance, technology and athletics. Finally on December 5, 2003 Northeastern School District and PPL agreed on a property assessment of \$15 million for the utility's Brunner Island power plant. PPL sent a check in the amount of \$762,786 to the district for taxes owed since January 2000.

York County assessed Peach Bottom Atomic Power Station at \$304 million. Exelon says the plant is worth \$10 million...

What will the assessed property value of Connectiv's plant be? How much will the Company pay to the county, municipality and school district on an annual basis?