June 10, 2014

Before the Advisory Committee on Reactor Safeguards
Re: Nuclear Regulatory Commission's Draft Safety Evaluation in Support of the Proposed Extended Power Uprate License Amendment for the Peach Bottom Atomic Power Station Units 2 & 3

Testimony of Eric Epstein, Chairman of Three Mile Island Alert , Inc. to Postpone Approval of the Proposed Extended Power Uproot License Amendment for the Peach Bottom Atomic Power Station Units 2 & 3 Until Open and Unresolved Environmental, Health & Safety Issues Are Addressed

I. Introduction.

The Peach Bottom Atomic Power Station ("Peach Bottom") located in southern York County, Pennsylvania is co-owned by ("Exelon") based in Illinois and Public Service and Gas ("PS&G") of New Jersey.

Philadelphia Electric's ("PECO") applied for a license to operate the Peach Bottom Atomic Power Station in July, 1960. The application was approved by the Atomic Energy Commission ("AEC").

Peach Bottom-1 was a 40 megawatt ("MWt"), High Temperature Graphite Moderated reactor that operated from 1966-1974.

Peach Bottom 2 & 3 are Boiling Water Reactor designed by General Electric and engineered by Bechtel. Both plants use a Mark 1 containment system. Peach Bottom 2's initial capacity was 1,159 MWt. Peach Bottom 2's capacity was initially set at 1,035 Net MWt for a total capacity of 2,194 MWt.

The construction permit for PBAPS, Units 2 and 3, was issued by the AEC on January 31, 1968. Both units were evaluated against the then-current AEC draft of the 27 General Design Criteria ("GDC") issued in November 1965.

On July 11, 1967, the AEC published for public comment, in the *Federal Register* (32 FR 10213), a revised and expanded set of 70 draft GDC. The licensee concluded that PBAPS, Units 2 and 3, conforms to the intent of the draft GDC."

On February 20, 1971, the AEC published in the *Federal Register* a final rule that added Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "General Design Criteria for Nuclear Power Plants".

The NRC decided not to apply the final GDC to plants with construction permits issued prior to May 21, 1971.

Unit 2 and Unit 3 began operation in July, 1974, but had their licensees extended by the Nuclear Regulatory Commission ("NRC") and are expected to operate though 2034.

On March 31, 1987, PECO was ordered by the Nuclear Regulatory Commission to shutdown Peach Bottom 2 and 3 on due to operator misconduct, corporate malfeasance and blatant disregard for the health and safety of area.

On February 3, 1988 , John H. Austin resigned as president of PECO after a unusually critical report by the Institute of Nuclear Power Operations (INPO) was published. The report asserted that Peach Bottom "was an embarrassment to the industry and to the nation." Zack T. Pate, president of INPO, added, "The grossly unprofessional behavior by a wide range of shift personnel ... reflects a major breakdown in the management of a nuclear facility."

On February 1, 1989, the NRC staff recommended that nuclear power plants that utilize the Mark 1 containment shell, modify the structure to reduce the risk of failure during a serious accident. PECO said it would make the $2 to $5 million changes only if the NRC.

Commission makes the modifications a requirement. This was the second time in two years that the NRC staff has advised the Commission to make changes to the Mark 1 containment structure.

The NRC released a report on June 21, 1989 relating to Mark 1 containment buildings entitled "Severe Accident Risks: An Assessment for Five U.S. Nuclear Plants." The NRC's six-member panel were evenly divided as to whether the Mark 1 containment would be breached during a serious accident. "The NRC decided not to order immediate changes in the Mark 1 containment." Yet half of the panel stated "with near certainty" the Peach Bottom's containment structure would fail during a core melt accident.

On April 21, 2000, the NRC approved the transfer of the Peach Bottom licenses from Delmarva Power and Light Company and Atlantic City Electric Company to PECO and PSEG Nuclear LLC.

By 2002, the NRC had approved Measurement Uncertainty Recapture Uprates and Stretch Uprates for Peach Bottom 2 & 3. The proposed amendments would authorize an increase in the maximum reactor power level from 3,514 megawatts thermal (MWt) to 3,951 MWt.

On August 2, 2005 Exelon Generation Company, LLC, on behalf of itself and PSEG Nuclear LLC, filed to acquire 100% of the facility following approval of the proposed license transfers.

In December, 2006 Exelon was fined $640,000 by the Susquehanna River Basin Commission ("SRBC") for water violations at Peach Bottom related to water use and power uprates. (SRBC, Docket #: 20061209). Exelon failed to seek the Commission's approval for any change in their processes that required them to increase water usage by 100,000 gallons a day.

Peach Bottom nuclear units were licensed to operate for 40 years and designed to produce 2,194 net MWt. Forty years later, the plants' operational lives have been extended by an additional twenty years and their combined capacity will increase to 3,951 MWt.

II. History of Power Uprates at Peach Bottom Atomic Power Station Units 2 & 3

Peach Bottom 2 received approval for a5% stretch uprate or 165 MWt increase on October 18, 1994. Peach Bottom 3 received approval for a 5% stretch uprate or 165 MWt increase on July 18, 1995.

Peach Bottom 2 & 3 received approval for a 1.62% Measurement Uncertainty Recapture ("MUR") uprate or 56 MWt increase on November 22, 2002.

Peach Bottom 2 received approval for a 5% stretch uprate or 165 MWt increase in October 18, 2004.

In December, 2006 Exelon was fined $640,000 by the Susquehanna River Basin Commission ("SRBC") for water violations at Peach Bottom related to water use and power uprates.

On September 28, 2012, Exelon Generation Company, LLC ("Exelon" or "the licensee") submitted a license amendment request for Peach Bottom Atomic Power Station, Units 2 and 3.

Peach Bottom announced an Extended Power Uprate (EPU) to 3,951 MWt core power for both units, which is 120% of Original Licensed (core) Thermal Power. The project was authorized for full implementation by co-owners Exelon and PSEG in July 2012. Implementation of modifications required for the EPU are planned over three refueling outages and during "online periods."

On April 5, 2002, Exelon outlined the projected timeline for approval of License Amendment Request and anticipated approval in May 2014.

In summary, the Extended Power Uprate process has been fluid with many open ended issues only recently closed out or left to future commitments as posted in the Federal Register.

III: Peach Bottom's Environmental Impacts on the Susquehanna River Basin

Peach Bottom does not use a closed-cooling system. 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.

The station does not currently use evaporative cooling towers for cooling needs, but evaporates up to 28 million gallons daily ("mgd") through heat transfer via once-through cooling with water withdrawn from Conowingo Pond. The Peach Bottom Atomic Power Station, located on the west bank of the Conowingo Pond in York County, Pennsylvania and 36 miles from downtown Baltimore- is a two-unit nuclear generating facility that uses water from the Conowingo pond for cooling purposes.

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. Peach Bottom is located in Lancaster and York Counties while Three Mile Island is situated in Dauphin and Lancaster Counties. (Pennsylvania Department of Environmental Protection, *Drought Report* and *Drought Conditions Summary*, August-September, 2002).

Ten years later in April 2012, the Susquehanna River reached record seasonal lows matching drought conditions of 1910 and 1946. U.S. Geological Survey analysis showed stream flows at hydrological emergency levels in 42 of the state's 67 counties as of Monday. Another 10 counties were at warning levels, and another 12 at watch level. Only three were normal or above. Groundwater levels are at emergency levels in 13 counties. The SRBC began issuing temporary orders to cease water withdrawals in February, 2012.

The Lower Susquehanna River is impacted abnormal weather conditions. For example, "periods of drought or extended periods of low flow can adversely affect the ability of the dam to meet minimum flow and summertime pond level minimums. In addition, due to high ambient and water temperatures and low flow, maintaining the minimum dissolved oxygen requirement is also challenging. These situations can further be compounded if the flows coming into the pond as measured at the Marietta gage do not equal the flow outfalls. This not only affects the dam, but also the water supply companies and Peach Bottom Atomic Power Station due to the loss of pond level. Additionally, recreational boating and marina operation becomes severely hampered due to low water levels. ("Conowingo Pond Management Plan," *Publication No. 242* , June 2006, p. 71.)

The Susquehanna Ricer Basin is flood prone. "Since record-keeping began 200 years ago, the Susquehanna River has proven one of the most flood-prone watersheds in the nation. The watershed encompasses 27,510 square miles and extends from New York to Pennsylvania to the

Chesapeake Bay in Maryland – where nearly 4 million people live…Of the 1,400 communities in the river basin, 1,160 have residents who live in flood-prone areas." (7th Annual Susquehanna River Symposium, Bucknell University, October 12-13, 2012)

Extreme weather events occur with more frequency including Tropical Storm Lee in 2011. Additionally, droughts have become more common in the Susquehanna River Basin.

Unlike other consumptive user i n the summer of 2002, Peach Bottom, did not "conserve" water until the plant was forced to 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." (Nuclear Regulatory Commission, IR-50-277/02-05; 50-278/02- 05).

Five years later in the summer of 2007, Peach Bottom-2 & 3 was detected returning water to the Susquehanna River at temperatures in excess of 110 degrees.

Communities and ecosystems that depend on limited water resources are adversely affected by "normal operating conditions" at nuclear stations.

The Conowingo Pond also plays a cortical role in Peach Bottom's water intake. Declining pond levels threaten Peach Bottom's cooling water intake, recreational use of the Conowingo pond, shore habitat levels, and downstream flows. As drought conditions continue, the operators continue to generate hydroelectricity as much as possible using the water available to them, but it becomes a secondary concern. The primary concern becomes the depletion of storage in the pond and safeguarding the ability of the pond to continue to make adequate releases during low flow events of extended duration." ("Conowingo Pond Management Plan," *Publication No. 242* June 2006 p. 21.)

"The Conowingo pond provides a mixed warm water recreational fishery for largemouth and small mouth bass, channel catfish, white crappie, bluegill, and to lesser degrees, striped bass, walleye and carp. The most abundant fish in the Conowingo pond is the gizzard shad. Bass fishing tournaments are commonplace during the open season. Steep, wooded slopes and railroad postings limit shoreline and boat access. The heated effluent from Peach Bottom Atomic Power Station attracts game fish during the winter and extends the open-water fishing season. ("Conowingo Pond Management Plan," *Publication No. 242*, June 2006, p. 13).

"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. 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." (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).

Water use and water consumption - as well as water supply and water chemistry - have direct and indirect relationships with safety related components, plant cooling, and are intimately connected to the health and safety of the Susquehanna River and the regional community.

IV. Legal Arguments for Revising the Nuclear Regulatory Commission's Draft Safety Evaluation.

The fragmentation of "regulatory oversight" or the segmentation of a large or cumulative project into smaller components in order to avoid designating the project a major federal action has been held to be unlawful. *City of Rochester v. United States Postal Serv., 541 F.2d 967, 972 (2d Cir. 1976)* .

"To permit non comprehensive consideration of a project divisible into smaller parts, each of which taken alone does not have a significant impact but which taken as a whole has cumulative significant impact, would provide a clear loophole to NEPA."); *Scientists' Inst. for Pub. Information, Inc. v. AEC, 156 U.S. App. D.C. 395, 481 F.2d 1079, 1086n.29, 1086-89 (D.C.Cir. 1973)* (statement required for overall project where individual actions are related logically or geographically). See generally W. Rodgers, Environmental Law ßß 7.7, 7.9 (1977) (discussing problems arising from scope and timing of environmental impact statements).

Federal and statewide statues can not be unilateral exempted or ignored by coordinated inaction.

Regional water coordination was clearly recognized by the Department of Environmental Protection ("DEP") on June 16, 2007 when the DEP advertised that the Susquehanna River Basin Commission was proposing comprehensive revisions to its regulations governing water withdrawal and consumptive use projects. (Proposed Rules [Federal Register: October 1, 2007 (Volume 72, Number 189) [Page 55711-55712] PART 808.)

The regional changes include a number of markers that the DEP and the NRC must address when consider Exelon's EPU request including a reduce the duration of consumptive use and withdrawal approvals from 25 years to 15; ending the recognition of "pre-compact" or "grandfathered" consumptive uses or withdrawals upon a change of ownership, and no longer allow the transfer of project approvals when a change of ownership occurs; and a require that sponsors of consumptive use projects involving ground or surface water withdrawals request approvals for the consumptive use and the withdrawals.

The SRBC stated, "If additional releases are made from new or existing sources, they will need to be accounted in the monitoring data at the Marietta gage. It will be important to understand how operations of Conowingo Dam will be affected and how existing CU [Consumptive Use] mitigation agreements for Peach Bottom Atomic Power Station and the City of Baltimore could be impacted. Operations of Conowingo Dam are driven by flows at Marietta, as are existing mitigation agreements for the Peach Bottom Atomic Power Station and the City of Baltimore. It will be necessary to specify that those agreements remain in force despite upstream mitigation, and to resolve methodologies for implementing the agreements in instances when upstream mitigation releases are distorting the flow measurements at Marietta. Regardless, Exelon and Baltimore will still be required to mitigate the CU of their projects." (Consumptive Use Mitigation Plan, *Publication No. 253*, March 2008, p. 29)

The Department of Environmental Protection and the Nuclear Regulatory Commission **exempted** Peach Bottom Atomic Power Station from preparing a final Environmental Impact Statement.

The Final Environmental Impact Statement ("EIS") was concluded by the NRC's predecessor agency - the Atomic Energy Commission - **in 1973** - prior to the Commonwealth of Pennsylvania enactment of aggressive statutes and regulations. Among the legislation passed were the Radiation Act (1984), Chesapeake Bay Commission Agreement Act (1985), Hazardous Site Cleanup Act (1988), Pennsylvania Environmental Stewardship and Water Protection Act (1999) and Act 129 (2008).

The initial EIS was issued decades prior to the emergence of the Environmental Protection Agency ("EPA") Section 316(b) of the Clean Water Act. EPA issued regulations on the design and operation of intake structures in order to minimize adverse environmental impacts.

EPA promulgated regulations in 2001, 2003, 2006 and 2014. The requirements are included in the National Pollutant Discharge Elimination System ("NPDES") permit regulations, 40 CFR Parts 122 and 125 (Subparts I, J, and N).

The NRC must investigate the impact of the Environmental Protection Agency (EPA) 316 (a) and 316 (b) and establish compliance milestones on applications from nuclear power plants.

Additionally, the traditional implications of the Pennsylvania Public Utility Commission (“Pa PUC”) policy and regulations relating to “withdraw and treatment” of water, i.e., referred to as "cost of water" under the Public Utility Code, Title 66, have to be factored in this application absent a PUC proceeding as well as Act 220 water usage guidelines.

Power generation, cooling and safety are inherently connected. There is no imaginary fence between generation and safety. And there should be no regulatory moat created by artificial safety definitions erected by nuclear regulators.

Neither DEP or NRC can bypass Act 220 of 2002 which “establishes the duty of any person to proceed diligently in complying with orders of the DEP.” (Section 3133)

Seasonal flow, Act 220, and the competing demands for limited water resources may make the amount of water available for power generation unreliable. Frequent power decreases and scrams show up as safety indicators and put stress on the nuclear generating stations. The NRC does not compile generation indicators, it analyzes safety indicators, like scrams and power reductions. The uprate clearly has the potential to create safety challenges by abruptly scramming the plant or forcing power reductions to accommodate a water use budget.

V. The NRC Staff's Draft Safety Evaluation is Replete with Assumptions, Generalizations and Delayed Compliance Deadlines.

The Federal Register Notice ("FR" or "the Notice") is populated with general, unqualified and vague assumptions and statements posited as empirical data.

The plant's cooling towers are not "routinely used" (see "Aquatic Resource Impacts"); and, are not planned to be "routinely used" during and after implementation of the EPU. Therefore, consistent with the discussion in NUREG–1437, Supplement 10, Section 2.2.8.4, "Visual Aesthetics and Noise," there should not be any significant impacts from the EPU, such as icing, fogging, plume, or noise impacts from the operation of cooling towers."

Please define and quantify the terms "plume" and "routinely." (FR, p. 18075)

The Federal Register projected, "Once the EPU has been implemented, water consumption for plant cooling will not significantly change from pre-EPU operation." (FR, p. 18075)

Please define and quantify current and post water consumption levels and define the term "significantly."

"If the proposed EPU is approved and is implemented, PBAPS is predicted to have a slightly larger and hotter mixing zone than pre-uprate conditions during full flow and capacity." (FR, p. 18079)

Please define and quantify “slightly larger” and “hotter mixing zone.”

“The NRC staff anticipates that PBAPS will continue to operate post-EPU in full compliance with the requirements of the PADEP. The PADEP would evaluate PBAPS compliance with its individual wastewater facility permit. “(FR, p. 18079)

How does the NRC measure and verify “anticipation?”

“The potential impacts to aquatic resources from the proposed action could include impingement of aquatic life on barrier nets, trash racks, and traveling screens; entrainment of aquatic life through the cooling water intake structures and into the cooling water systems; and effects from the discharge of chemicals and heated water.” (FR, p. 18075)

The NRC staff concluded in NUREG–1437, Supplement 10, Section 4.1.3, “Impingement of Fish and Shellfish;” that, during the continued operation of PBAPS, the potential impacts caused by the impingement of fish and shellfish on the debris screens of the cooling water intake system would be small (i.e., not detectable or so minor that they will neither destabilize nor noticeably alter any important attribute of the resource) and that impingement losses would not be great enough to adversely affect Susquehanna River aquatic populations.”

The NRC staff also concluded in NUREG–1437, Supplement 10, Section 4.1.3, “that, in the early life stages in the cooling water system, the potential impacts of entrainment of fish and shellfish would be small, and that there are no demonstrated, significant effects to the aquatic environment related to entrainment.”

The NRC provided no empirical data to support environmental impact conclusions,and ignored the aggregate impact of three EPUs implemented since the initial license was granted.

The staff also failed to define and quantify "alter," "so small, or "significant impact."

Staff's conclusions relating to "Aquatic Resource Impacts" are based on ongoing studies and appears to co-mingled and mix assumes station conditions under the grandfathered NPDES permit:

> However,this conclusion was made assuming station conditions under the previous NPDES permit... After the study is completed and based on the study results, Exelon will submit to PADEP an application to modify the NPDES permit. These modifications may include actions to manage the thermal discharge under EPU conditions. For any such future modifications, the PADEP must, in accordance with Section 316(a) of the Clean Water Act, ensure thermal effluent limitations assure the protection and propagation of a balanced indigenous community of shellfish, fish, and wildlife in and on Conowingo Pond." (FR, 18706)

The conclusions stated under "Aquatic Resource Impacts" may not be consistent with EPA 316 (b), and are based on a dated NPDES permit, and the NRC is allowing delayed implementation of to Peach Bottom based on pending statutes. (FR, p. 18075).

Why are DEP and the NRC granting waivers based on outdated assumptions, data and studies to be concluded at a later date?

The NRC conclusions are also inconsistent with the historical facts on the ground as enumerated in the discussed under III. Peach Bottom's Environmental Impacts on the Susquehanna River Basin, pp. 6-10.

Regarding the potential impacts of thermal discharges, in NUREG–1437, Supplement 10, Section 4.1.4, "Heat Shock," the NRC staff concluded that the "impacts are small and that the heated water discharged to Conowingo Pond does not change the temperature enough to adversely impact balanced, indigenous populations of fish and wildlife." (FR, pp. 18075-10876).

What are the small impacts and why did the EPA, the NRC and the SRBC accept a generic rather than a site specific evaluation? Has the EPA, the NRC or SRBC anticipated or projected impacts after the "renewed license period…"? If the period is more than 15 years, please explain how this time period has been exempted by SRBC regulations.

Additionally, the NRC failed to explain how the intake structure is designed to reduce the impingement and entrapment of aquatic organisms, and how this design comports with 316 (b).

Moreover, the NRC has "generically" determined that the "effects from discharge of chlorine or other biocides, as well as accumulation of contaminants in sediments or biota, would be small for continued operations during a renewed license period at all plants as discussed in Section 4.5.1.1, "Surface Water Resources, Discharge of Biocides, Sanitary Wastes, and Minor Chemical Spills," of the "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," NUREG–1437, Volume 1, Revision 1, dated June 2013." (ADAMS Accession No. ML 13106A241). (FR, p. 18076)

What and where are the plan(s) to confirm and monitor what and how much "chemical effluents [are] discharged"? How are regulatory agencies going to monitor the changes or quantify or type of discharges?

The DEP and the NRC failed quantify site-specific aquatic challenges, and invasive species challenges based on the documented challenges that currently exist in the Susquehanna River.

The DEP confirmed that zebra mussel adults and juveniles have been found in Goodyear Lake, the first major impoundment on the Susquehanna River's main stem below Canadarago Lake in New York. Zebra mussels are an invasive species posing a serious ecological and economic threat to the water resources and water users downstream in the river and Chesapeake Bay. On June 19, 2007, zebra mussels were discovered in Cowanesque Lake, Tioga County. This marks the first time zebra mussels have been discovered in the area.

> "In 2002, the first report of zebra mussel populations in the Chesapeake Bay Watershed were reported from Eaton Reservoir in the headwaters of the Chenango River, a major tributary to the Susquehanna River in New York. A short time later, zebra mussels also were found in Canadarago Lake, a lake further east in the Susquehanna main stem headwaters. Now, through DEP's Zebra Mussel Monitoring Network, reports were received that both zebra mussel adults and juveniles, called veligers, have made their way down to the Susquehanna main stem headwaters."
>
> (Pa DEP, *Update*, July 16, 2004)

Zebra mussels, like Asiatic clams, shad and other biological fouling, can invade the Peach Bottom Atomic Power Station from the Chesapeake Bay or Susquehanna River.

Zebra mussels have been discovered at the Susquehanna Steam Electric Station's fail-safe water supply in Cowanesque Lake and noted: "There is no evidence zebra mussels have been found in anywhere in the vicinity of the SSES…" But the NRC acknowledges the "SRBC requirement that the SSES compensate consumptive water use during river low-flow conditions by sharing the costs of the Cowanesque Lake Reservoir, which provides river flow augmentation source.

In recent years, Algae blooms recently "caused continuous clogging of multiple strainers of all pumps in TMI the intake structure; including: the two safety related DR pumps, all three safety related NR pumps, and all three non-safety related secondary river pumps." (NRC IR 05000289/2006004, p. 7.)

Neither DEP, NRC or SRBC addressed health, safety and structural challenges caused by micro fouling versus macro fouling, micro biologically influenced corrosion, algae blooms, biofilm's disease causing bacteria such as Legionella and listeria, the difficulty in eliminating established biofilms, oxidizing versus non- oxidizing biocides, chlorine versus bleach, alkaline versus non-alkaline environments, possible decomposition into carcinogens, and the eastward migration of Asiatic clams, zebra mussels and the anticipated arrival quagga mussels.

NRC staff noted the limitation of the inspection protocol and "requested that licensees establish a routine inspection and maintenance program to ensure that corrosion, erosion, protective coating failure, silting, and biofouling/tube plugging cannot degrade the performance of the safety-related systems supplied by service water. These issues relate to

the evaluation of safety-related heat exchangers using service water and whether they have the potential for fouling, thereby causing degradation in performance, and the mandate that there exist a permanent plant test and inspection program to accomplish and maintain this evaluation."

"The regulations in 10 CFR 50.36, set forth NRC requirements related to the content of TSs. Pursuant to 10 CFR 50.36, TSs are required to include items in the following five specific categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. **The regulation does not specify the particular requirements to be included in a plant's TSs.** (NRC, "Peach Bottom Atomic Power Station, Unit 2 & 3, Issuance of Amendment Re: Revise Normal Heat Sink Operability Requirement", Tag Nos. M9805 & M98906, June 5, 2014).

The NRC identified the need for biological and thermal studies. When are the biological and thermal studies going to be completed? Why would the DEP the NRC approve an uprate prior to the completion of the studies? Why is NPDES compliance being delayed until after the uprate is implemented?

VI: Miscellaneous:

The census data - which is 4.5 years old - fails to factor household incomes as it relates to proximate buying power, the Consumer Price Index, commuter times and property taxes. The census data completely ignores fishing and hunting seasons, migrant worker populations and special population including the Amish, Old Order Mennonites and recreational visitors in southern Lancaster and York Counties.

It appears the NRC completely bypassed by the York County Planning Commission. The Commission considers all social, economic, historical, and environmental aspects of projects impact the region.

The U.S. Fish and Wildlife Service has many interests in the relicensing of Conowingo, Muddy Run and Peach Bottom, including the "general health of living resources in the pond and in Conowingo's tail waters; impacts of Conowingo hydropower generation schedule on downstream resources, anadromous fish restoration and safe upstream and downstream passage of fish (especially diadromous species including eels); and the impact of water development projects on aquatic resources (e.g., egg and larvae impingement at water intakes, stream side development, endangered species issues)."("Conowingo Pond Management Plan," *Publication No. 242, p. 76,* June 2006.)

Did the U.S. Fish and Wildlife Service review Exelon's proposed Extended Power Uprate?

The draft SER also assumes the States of Delaware and Maryland do not exist.

There was no discussion of significant historic assets within 50 miles of Peach Bottom including but not limited to: Camp David, the Eisenhower Farm, the First American Capital in York, Gettysburg National Park, Harley-Davidson, Hershey Chocolate, the Pennsylvania Historical and Museum Commission sites and Underground Railroads sites.

No physical changes for radioactive waste disposal were noted which is a strange omission since the NRC approved Peach Bottom as the storage site for Limerick's low-level radioactive waste. Exelon applied to amend Peach Bottom's license in early 2010 to accept low level radioactive waste from Limerick. Exelon can keep the Limerick waste at Peach Bottom for as long as it wants according to NRC spokesman Neil Sheehan sated. "As time goes on, however, the plant may face capacity issues and will need to look for disposal options." (*York Daily Record*, June 1, 2011)

Peach Bottom hosts almost 2,000 tons high level radioactive waste in spent fuel pools and dry casks. The EPU will increase the volume and activity of radioactive solid waste by approximately 14%.

In March 2012, the NRC ordered Peach Bottom Unit 3 to install instrumentation to monitor conditions inside the spent fuel pools also ordered plants owners to develop mitigation strategies to provide assurance of adequate cooling of reactor cores and spent fuel pools when permanent electrical supplies are unavailable for indefinite periods.

VII. Finding of No Significant Impact.

On page 18073, the Summary - which is actually conclusion:

> The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of amendments to Renewed Facility Operating License Nos. DPR–44 and DPR–56, issued to Exelon Generation Company, LLC (Exelon, the licensee), for operation of the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, located in York and Lancaster Counties, Pennsylvania. The proposed amendments would authorize an increase in the maximum reactor power level from 3514 megawatts thermal (MWt) to 3951 MWt. The NRC staff is issuing a final Environmental Assessment (EA) and final Finding of No Significant Impact (FONSI) associated with the proposed license amendments.

Later on page 18082, the NRC restates its summary in the Findings of No Significant Impact.

> The NRC is proposing to amend Renewed Facility Operating License Nos. DPR–44 and DPR–56 for PBAPS, Units 2 and 3. The proposed amendments would authorize an increase in the maximum reactor power level from 3514 MWt to 3951 MWt. The NRC has determined not to prepare an Environmental Impact Statement for the proposed action. The proposed action will not have a significant effect on the quality of the human environment because, amending the licenses with the higher maximum reactor power level, will not result in any significant radiological or non- radiological impacts. Accordingly, the NRC has determined that a Finding of No Significant Impact (FONSI) is appropriate. The NRC's Environmental Assessment (EA), included in Section II above, is incorporated by reference into this finding.

The publication was dated March 31, 2014. Six weeks later, the Peach Bottom nuclear plant was placed on the NRC's priority list of 10 nuclear plants in the Central and Eastern United States that have to do

more detailed risk evaluation from an earthquake. Peach Bottom was chosen for an expedited evaluation based on updated information about the possibility of localized earthquakes. If ground movement from the an earthquake based on the new information exceeds what was used when the plant was designed, Peach Bottom will have to conduct a detailed analysis to determine any changes in accident risk from a quake by December, 2014. Exelon will have to complete an "expedited approach" review to evaluate and reinforce key core cooling equipment to make sure the plant could safely shutdown if a quake hit at the level now considered possible.

Paradoxically, a sliding scale of standards was applied to on June 3, 2014, relating to the relicensing of the Muddy Run is also owned and operated by Exelon. The 800 MWt hydroelectric station is located on the eastern shore of the Conowingo Pond on the Susquehanna River in Lancaster County. The project has operated since 1966.

The Department of Environmental Protection announced that it has issued a water quality ("WQ") certification for the continued operation and maintenance of Exelon's Muddy Run hydroelectric project in Martic and Drumore Townships in southern Lancaster County.

Pennsylvania WQ certification is required for relicensing by the Federal Energy Regulatory Commission for projects like the Muddy Run Project under the Federal Power Act. WQ certifications are authorized under the Federal Clean Water Act, the Pennsylvania Dam Safety and Encroachments Act and the Pennsylvania Clean Streams Law.

The hydro plant that is owned by Exelon and produces 22.4% of the electricity of its nuclear sibling agreed to make substantial commitments to mitigating the aquatic resource impacts of the project. While DEP and the NRC gave Exelon a free pass on the EPU at Peach Bottom, the same company acknowledged that in order for the Muddy Run project to continue operation and to minimize the effects of the facility on aquatic resources, Exelon had to agree to:

• Provide $500,000 per year for 16 years for agricultural pasture and barnyard best management practices to address sediment introduction and other habitat improvement projects, such as stream improvement projects, riparian buffers and small dam removal in Lancaster and York counties.

• Provide a version of Exelon's computer model for evaluating river flows on the Lower Susquehanna River to the Susquehanna River Basin Commission.

• Provide $8 million over 16 years by Exelon to the Lancaster and York County conservation districts.

In contrast, the NRC is entertaining a request by Exelon's to postpone flood reevaluation for peach Bottom 2 & 3 - due on March 12, 2014 - **until March 12, 2015.** Exelon discussed the milestones for completion of the flooding hazard reevaluation as follows in a letter to the NRC on March 12, 2104.

a) Complete recalibration of the watershed model by the end of May 2014.

b) Complete development of the scenarios for the Probable Maximum Flood at PBAPS, Units 2 and 3, by the end of July 2014.

c) Complete the calculations of flood levels and associated effects based on Appendix H to NUREG/CR-7046, "Design-Basis Flood Estimation for Site Characterization at Nuclear Power Plants in the United States of America," by the end of December 2014.

d) Start internal Exelon review of the PBAPS flooding hazard reevaluation in mid-January 2015.

e) Submit PBAPS flooding hazard reevaluation to the NRC by March 12, 2015.

(NRC, Richard B. Ennis, Senior Project Manager Plant Licensing Branch 1-2 Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation, May 21, 2014)

VIII. Conclusions:

Power generation, cooling and safety are inherently connected. There is no fence between generation and safety. And there should be no regulatory moat created by artificial safety definitions erected by nuclear generators. The lack of regulatory coordination establishes a deleterious precedent, and constitutes *de facto* approval of grandfathered and outdated regulations.

Even more baffling are the regulatory moats that federal and state agencies erect to protect rigid and exclusive zones of interest. This type of laissez-faire regulatory behavior gives rise to undesired corporate behaviors such as “grandfathering" and “back fits,” deterioration of monitoring equipment, time delays causing avoidable leaks, and waivers for monitoring wells.”

Populations long the Susquehanna River are potentially impacted by contaminated water, liquid-release exposure pathways, irrigated crops and external exposure during recreational activities.

The Final Safety Evaluation analysis must factor the entire Peach Bottom Region which includes Delaware, Maryland and Pennsylvania and the Chesapeake Bay - largest estuary in North America.

The NRC staff must also review dated and delayed submissions, reconcile “grandfathered” regulations and clarify general and vague assumptions.

The proposed Extended Power Uproot License Amendment for the Peach Bottom Atomic Power Station Units 2 & 3 should be held in abeyance until all the open and unresolved environmental, health and safety issues identified in this Testimony have been addressed and closed out.

Respectfully Submitted,

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Service list:

Environmental Protection Agency
Exelon Generation
Pennsylvania Department of Environmental Protection
Pennsylvania Fish and Boat Commission
Pennsylvania Historical and Museum Commission
Pennsylvania Public Utility Commission
Susquehanna River Basin Commission
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
U.S. Nuclear Regulatory Commission

Dated: June 10, 2014