

DRAFT
FEDERAL CONSISTENCY CERTIFICATION FOR
FEDERAL PERMIT AND LICENSE APPLICANTS¹
PEACH BOTTOM ATOMIC POWER STATION LICENSE RENEWAL

The Federal Coastal Zone Management Act (16 USC 1451 et seq.) imposes requirements on an applicant for a Federal license to conduct an activity that could affect a state's coastal zone. The Act requires the applicant to certify to the licensing agency that the proposed activity would be consistent with the state's federally approved coastal zone management program. The Act also requires the applicant to provide to the state a copy of the certification statement and requires the state, at the earliest practicable time, to notify the federal agency and the applicant whether the state concurs or objects to the consistency certification [See USC 1456(c)(3)(A)].

The National Oceanic and Atmospheric Administration has promulgated implementing regulations that indicate that the certification requirement is applicable to renewal of federal licenses for activities not previously reviewed by the state [15 CFR 930.51(b)(1)]. The State of Maryland has a federally-approved coastal zone management program (Reference 1), described below. PECO Energy (PECO) is applying to the U.S. Nuclear Regulatory Commission (NRC) for renewal of the operating licenses for Peach Bottom Atomic Power Station (PBAPS) Units 2 and 3. PBAPS is located in southeastern Pennsylvania on the western bank of Conowingo Pond on the Susquehanna River. The Maryland coastal zone extends to the state's northern border, and includes the southern third of Conowingo Pond. Therefore, PECO has chosen to prepare a Certification of Compliance with the Maryland Coastal Zone Management Program (CZMP).

CONSISTENCY CERTIFICATION

PECO has determined that NRC renewal of the PBAPS licenses to operate would be consistent with the federally-approved Maryland CZMP. PECO expects PBAPS operations during the license renewal term to be a continuation of current operations as described below, with no changes that would affect Maryland's coastal zone.

Proposed Activity

PECO operates PBAPS Units 2 and 3 in accordance with NRC licenses DPR-44 and DPR-56, respectively. The Unit 2 license will expire on August 8, 2013 and the Unit 3 license on July 2, 2014. PECO is applying to NRC for renewal of both licenses, which would enable 20 additional years of operation (i.e., until August 8, 2033 for Unit 2 and on July 2, 2034 for Unit 3).

PBAPS is located on 620 acres in Peach Bottom Township, York County, Pennsylvania, on the west side of Conowingo Pond on the Susquehanna River, approximately 18 miles upstream from the point where the river enters the Chesapeake Bay. While not located in Maryland, PBAPS withdraws water from and discharges water to Conowingo Pond. The Conowingo Dam and a portion of the pond are located within Maryland and the Maryland coastal zone. The plant's location, therefore, gives rise to the possibility of it affecting the Maryland coastal zone.

Because PBAPS is located in Pennsylvania, it abides by Commonwealth of Pennsylvania regulations. However, the Commonwealth cooperates with the State of Maryland on matters related to coastal zone management through its participation in the Chesapeake Bay Commission and the Chesapeake Bay

¹ This certification is patterned after the draft model certification included as Attachment 6 of Reference 2.

Program partnership. The Chesapeake Bay Commission is a tri-state legislative commission that advises the members of the General Assemblies of Maryland, Virginia, and Pennsylvania on matters of Bay-wide concern. The Pennsylvania Department of Environmental Protection shares its information on water quality, fish blockages, air deposition and zoning and land use with other Chesapeake Bay Program partners through the Chesapeake Information Management System.

In addition to the two nuclear reactors, the PBAPS site includes two switchyards, an independent spent fuel storage installation, and the retired PBAPS Unit 1 (a prototype high-temperature, gas-cooled reactor). A 500-kilovolt (kV) transmission line runs approximately 34 miles eastward from PBAPS to the Keeney substation in New Castle County, Delaware. The Keeney transmission line crosses Conowingo Pond, and traverses Lancaster County, Pennsylvania and Cecil County, Maryland. Figures 2-1 and 2-2 show the 50-mile region around PBAPS and the site layout, respectively, and Figure 3-2 locates the Keeney transmission line corridor.

PBAPS uses uranium dioxide fuel in two nuclear reactors to produce steam in turbines that generate approximately 1,065 megawatts of electricity each for offsite use. The NRC has licensed both PBAPS reactors to operate on a 24-month refueling cycle, with a fuel burnup of 60,000 megawatt-days per metric ton of uranium. PECO stores PBAPS spent fuel onsite in a spent fuel pool and in an independent spent fuel storage installation.

Until 1996, PBAPS used forced draft cooling towers to cool the condenser cooling water. In 1998, the Pennsylvania Department of Environmental Protection issued a National Pollutant Discharge Elimination System (NPDES) permit amendment that allowed PBAPS to operate without cooling towers. Since then, PBAPS has used a once-through heat dissipation system. When both units are operating, PBAPS withdraws approximately 1.5 million gallons per minute of water through an intake structure that lies on the west bank of the reservoir. PBAPS discharges the heated effluent to the reservoir via a cooling basin and a discharge canal. The highest observed temperature in the discharge canal during a comprehensive three-year study was 106.5°F. PECO holds an NPDES permit for this and other plant and stormwater discharges. In accordance with the permit conditions, PECO monitors discharge characteristics and reports results to the Pennsylvania Department of Environmental Protection.

PECO employs approximately 700 permanent and 275 contract employees at PBAPS. Approximately 66 percent of the employees live in York or Lancaster Counties, Pennsylvania; the remaining 34 percent live in other locations. Once a year, the site workforce increases by approximately 800 temporary workers during refueling outages (30 to 40 days). In compliance with NRC regulations, PECO has identified activities needed for PBAPS to operate an additional 20 years. PECO conservatively assumes that renewal of the PBAPS licenses would require the addition of no more than 60 permanent workers during the period of extended operations.

Environmental Impacts

The NRC has prepared a generic environmental impact statement (GEIS) on impacts that nuclear power plant operations can have on the environment (Reference 3) and it has codified its findings (10 CFR 51, Subpart A, Appendix B, Table B-1). The codification identifies 92 potential environmental issues, 69 of which NRC identifies as having small impacts, regardless of plant or location, and calls “Category 1” issues. NRC defines “small” as follows:

Small – For the issue, environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any attribute of the resource. For the purpose of assessing radiological impacts, the Commission has concluded that those impacts that do not exceed

permissible levels in the Commission’s regulations are considered small as the term is used in this table. (10 CFR 51, Subpart A, Appendix B, Table B-1).

The NRC codification and the GEIS discuss the following types of Category 1 environmental issues:

- Surface water quality, hydrology, and use
- Aquatic ecology
- Groundwater use and quality
- Terrestrial resources
- Air quality
- Land use
- Human health
- Postulated accidents
- Socioeconomics
- Uranium fuel cycle and waste management
- Decommissioning

In its decisionmaking for plant-specific license renewal applications, absent new and significant information to the contrary, NRC will rely on its codified findings, as amplified by supporting information in the GEIS, for assessment of environmental impacts from Category 1 issues [10 CFR 51.95(c)(4)]. PECO has adopted by reference the NRC findings and GEIS analyses for all 56² applicable Category 1 issues. For plants such as PBAPS that are located near the coastal zone, many of these issues involve impacts to the coastal zone.

The NRC regulation identifies 21 issues as “Category 2,” for which license renewal applicants must submit additional, site-specific information.³ Of these, 14 apply to PBAPS and could involve impacts to the coastal zone. The applicable issues and PECO’s impact conclusions are listed below:

- Surface Water Quality, Hydrology, and Use
 - Water Use Conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow) – This issue addresses effects that surface water withdrawals could have on flow of the river and instream riparian and aquatic communities. The PBAPS site has three forced draft cooling towers that would consume relatively small amounts of water (0.4 to 1.5 percent of river flow during periods of extreme drought), if operated. PBAPS uses once-through cooling and does not operate the cooling towers. PECO concludes that these impacts are small during current operations and it has no plans that would change this conclusion for the license renewal term.
- Aquatic Ecology
 - Entrainment of fish and shellfish in early life stages – This issue addresses mortality of organisms small enough to pass through the plant’s cooling water system. PECO has conducted studies of this issue under direction of the U.S. Environmental Protection

² The other 13 Category 1 issues apply to design or operational features that PBAPS does not have (i.e. cooling ponds and groundwater withdrawal) or to an activity, refurbishment, that PECO will not undertake.

³ 10 CFR 51, Subpart A, Appendix B, Table B-1 also identifies two issues as “NA” for which NRC could not come to a conclusion regarding categorization. PECO believes that neither of these issues, chronic effects of electromagnetic fields and environmental justice, affect the “coastal zone” as that phrase is defined by the Coastal Zone Management Act [16 USC 1453(1)].

Agency (EPA) and the Commonwealth of Pennsylvania. In issuing the plant's NPDES permit, the Commonwealth has approved the plant's intake structure as best available technology to minimize impacts. PECO concludes that these impacts are small during current operations and it has no plans that would change this conclusion for the license renewal term.

- Impingement of fish and shellfish – This issue addresses mortality of organisms large enough to be caught by intake screens before passing through the plant's cooling water system. The studies and permit discussed above also address impingement. PECO concludes these impacts are small during current operations and it has no plans that would change this conclusion for the license renewal term.
- Heat Shock – This issue addresses mortality of organisms caused by exposure to heated plant effluent. PECO has conducted studies of this issue under direction of the Commonwealth of Pennsylvania. In issuing the plant's NPDES permit, the Commonwealth has determined that more stringent limits on the heated effluent are not necessary to protect the aquatic environment. **[Need to verify statement when new permit is issued. Permit has already been submitted to PA.]** PECO concludes these impacts are small during current operations and it has no plans that would change this conclusion for the license renewal term.
- Groundwater Use and Quality
 - Groundwater Use Conflicts (plants using cooling towers withdrawing make-up water from a small river) – This issue addresses effects that surface water withdrawals from small water bodies could have on aquifer recharge. As discussed above, the PBAPS site has three forced draft cooling towers that would consume relatively small amounts of water, if they were operated. PBAPS currently uses once-through cooling and does not operate the cooling towers. PECO concludes that these impacts are small during current operations and it has no plans that would change this conclusion for the license renewal term.
- Threatened or Endangered Species – This issue addresses effects that PBAPS operations could have on species that are listed under federal law as threatened or endangered. In analyzing this issue, PECO has also considered species that are listed under Commonwealth of Pennsylvania and State of Maryland law. Several species could occur on the PBAPS site, in the vicinity of the site, in the Susquehanna River, or along the associated transmission corridor. PBAPS environmental studies and environmental protection programs have identified no adverse impacts to such species and PECO consultation with cognizant Federal and State agencies has identified no issues of concern. **[Verify after consultations are complete. They are in progress.]** PECO concludes that PBAPS impacts to these species are small during current operations and it has no plans that would change this conclusion for the license renewal term.
- Human Health
 - Microbiological organisms – This issue addresses effects that PBAPS operations could have on the survival of thermophilic microorganisms in public waters. During a three-year study of discharge temperatures from PBAPS, mean monthly temperatures ranged from 81.6 °F to 99.9 °F. These temperatures are below the temperature range for optimal growth and reproduction of thermophilic microorganisms. PBAPS also uses chlorine to disinfect service water systems, which reduces the likelihood that a seed source or inoculant would be introduced to Conowingo Pond. Under certain circumstances, thermophilic organisms may be present in the discharge canal, but not in

sufficient concentration to pose a threat to recreational users of Conowingo Pond or downstream water users. PECO concludes that these impacts are small during current operations and it has no plans that would change this conclusion for the license renewal term.

- Electromagnetic fields, acute effects (electric shock) – This issue addresses the potential for shock from induced currents, similar to static electricity effects, in the vicinity of transmission lines. Because this strictly human-health issue does not directly or indirectly affect natural resources of concern within the Coastal Zone Management Act definition of “coastal zone” [16 USC 1453(1)], PECO concludes that the issue is not subject to the certification requirement.

- Socioeconomics

PECO expects to perform license renewal activities without adding staff. As a conservative measure, however, PECO has assumed, for the purposes of socioeconomic impact analysis, as many as 60 new permanent employees during the license renewal term. PECO assumes these employees would find housing in the same locales where current employees reside.

- Housing – This issue addresses impacts that PECO new-license-renewal-term jobs and concomitant indirect jobs could have on local housing availability. NRC concluded, and PECO concurs, that impacts would be small for plants, such as PBAPS, that are located in high population growth areas with no growth control measures.
- Public services: public utilities – This issue addresses impacts that adding license renewal term employees could have on public water supply systems. PECO has analyzed public water supply availability in candidate locales and it has found no system limitations that would suggest that additional workers would cause significant impacts. PECO concludes that impacts during the license renewal term would be small.
- Offsite land use – This issue addresses impacts that local government spending of plant property tax dollars can have on land use patterns. Land use patterns within York County have not shown significant changes since PBAPS began operations. Based on past practices, PECO concludes that impacts during the PBAPS license renewal term would be small.
- Public services: transportation – This issue addresses impacts that adding license renewal term employees could have on local traffic patterns. PECO’s conservative projection of 60 additional employees associated with license renewal for PBAPS represents a 6 percent increase in the current number of employees and an even smaller percentage of employees present onsite during periodic refueling. Given these employment projections and the average number of vehicles per day currently using the access road to PBAPS, PECO concludes that impacts during the license renewal term would be small.
- Historic and archeological resources – This issue addresses impacts that license renewal activities could have on resources of historic or archeological significance. No such resources have been identified on the PBAPS site or the associated transmission line and PECO has no plans for license renewal that would disturb unknown resources. PECO consultation with the Historic Preservation Officer in the State of Maryland has identified no issues of concern [**Need to verify results of consultations. They are in progress.**]. PECO concludes that continued operation of PBAPS would have no adverse impacts to historic resources in the Maryland coastal zone.

- Postulated Accidents
 - Severe accidents – NRC determined that the license renewal impacts from severe accidents would be small, but determined that applicants should perform site-specific analyses of ways to further mitigate impacts. [PECO is in the process of determining this now but nothing is expected to alter this statement.]

Another source of information about PBAPS impacts on the coastal zone is the biennial reports by the Maryland Power Plant Research Program (e.g., Reference 4). Maryland law requires the Program to review and evaluate the potential impacts to Maryland's environment from the construction and operation of electric power generating and transmission systems. The Program summarizes these evaluations biennially in a document known as the Cumulative Environmental Impact Report. These reports discuss power plant air, water, terrestrial, radiological, and socioeconomic impacts, as well as topical issues. The 1999 report concluded that radiological impacts from PBAPS operations are insignificant and environmental impacts from nuclear power facilities are generally smaller than impacts from other electricity generating technologies.

State Program

Like many states, Maryland's CZMP is a "networked" program, which means that it is based on a variety of existing State authorities rather than a single law and set of regulations. The Maryland CZMP document (Reference 2) sets forth and discusses these authorities and how the State uses them to assure conformance with the Coastal Zone Management Act (16 USC 1451 et seq.) requirements.⁴ Tables 9-1 and 9-2 identify licenses, permits, consultations, and other approvals necessary for PBAPS license renewal and continued operation.

Findings

1. NRC has found that the environmental impacts of Category 1 issues are small. PECO has adopted by reference NRC findings for Category 1 issues applicable to PBAPS.
2. For Category 2 issues applicable to PBAPS, PECO has determined that the environmental impacts are small.
3. To the best of PECO's knowledge, PBAPS is in compliance with Pennsylvania licensing and permitting requirements and is in compliance with its State-issued licenses and permits.
4. PECO's license renewal and continued operation of PBAPS would be consistent with the enforceable provisions of the Maryland CZMP.

STATE NOTIFICATION

By this certification that PBAPS license renewal is consistent with the Maryland CZMP, the State of Maryland is notified that, per 15 CFR 930.63(a), it has six months from the receipt of this letter and accompanying information in which to concur or object to the PECO certification. However, pursuant to 15 CFR 930.63(b), if the State of Maryland has not issued a decision within three months following commencement of State agency review, it shall notify the contacts listed below of the status of the matter

⁴ The Maryland Coastal Zone Management Program identifies the key enabling legislation as the Chesapeake Bay Critical Area Protection Act; the Tidal and Nontidal Wetlands Act; and the Economic Growth, Resource Protection, and Planning Act.

and the basis for further delay: The State's concurrence, objection, or notification of review status shall be sent to:

Mr. John Boska, Project Manager
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James A. Hutton, Director-Licensing
PECO Nuclear
200 Exelon Way
Kennett Square, PA 19348

REFERENCES

1. "State of Maryland Coastal Zone Management Program and Final Environmental Impact Statement," U. S. Department of Commerce, August 1978.
2. NRR Office Letter No. 906, Revision 2, "*Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues*," U. S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, September 21, 1999.
3. Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants, U.S. Nuclear Regulatory Commission, May 1996.
4. "Maryland Power Plants and the Environment: A Review of the Impacts of Power Plants and Transmission Lines on Maryland's Natural Resources," PPRP-CEIR-10, Maryland Power Plant Research Program, Maryland Department of Natural Resources, January 1999.

ATTACHMENTS

Figure 2-1
Figure 2-2
Figure 3-2
Table 9-1
Table 9-2