UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 25, 2019

Mr. Michael Gallagher
Vice President, License Renewal
and Decommissioning
Exelon Nuclear
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: ISSUANCE OF ENVIRONMENTAL SCOPING SUMMARY REPORT ASSOCIATED WITH THE STAFF'S REVIEW OF THE PEACH BOTTOM ATOMIC POWER STATION UNITS 2 AND 3 SUBSEQUENT LICENSE RENEWAL APPLICATION (EPID NO. L-2018-RNW-0013)

Dear Mr. Gallagher:

The U.S. Nuclear Regulatory Commission (NRC or the staff) conducted an environmental scoping process and solicited public comments from September 10, 2018 to October 10, 2018. This process helped define the scope of the staff's environmental review of the application for subsequent renewal of the operating licenses for Peach Bottom Atomic Power Station (PBAPS). The scoping process is the first step in the development of a plant-specific supplement to NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML13106A241, ML13106A242, and ML13106A244).

As part of the scoping process, the staff held a public meeting in Delta, Pennsylvania on September 25, 2018, to solicit public input regarding the scope of the review. The staff also received written comments by letter, e-mail and through www.Regulations.gov. At the conclusion of the scoping process, the staff prepared the enclosed environmental scoping summary report that identifies the comments received during the scoping period. In accordance with Section 51.29(b) of Title 10 of the *Code of Federal Regulations* (10 CFR), the staff will send a copy of the scoping summary report to all participants in the scoping process.

The transcript of the public scoping meeting is available for public inspection in the NRC Public Document Room (PDR), located at One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852, or from the NRC's Agencywide Documents Access and Management System (ADAMS). The ADAMS Public Electronic Reading Room is accessible at http://www.nrc.gov/reading-rm/adams.html. The transcript for the scoping meeting is available under ADAMS Accession No. ML18288A438. Persons who encounter problems in accessing documents in ADAMS should contact the NRC's PDR reference staff by telephone at 1-800-397-4209 or 301-415-4737 or by e-mail at pdr.resource@nrc.gov.

Should you have any questions concerning the staff's environmental review of this license renewal application, please contact the Project Manager, David Drucker, at 301-415-6223 or by e-mail at David.Drucker@nrc.gov.

Sincerely,

***/RA/***

Eric R. Oesterle, Chief
License Renewal Project Branch
Division of Materials and License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-277 and 50-278

Enclosure:
As stated

cc w/encl: Distribution via Listserv

SUBJECT: ISSUANCE OF ENVIRONMENTAL SCOPING SUMMARY REPORT ASSOCIATED WITH THE STAFF'S REVIEW OF THE PEACH BOTTOM ATOMIC POWER STATION UNITS 2 AND 3 SUBSEQUENT LICENSE RENEWAL APPLICATION (EPID NO. L-2018-RNW-0013) DATED July 25, 2019

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# Supplemental Environmental Impact Statement
# Scoping Process

# Summary Report

## Peach Bottom, Units 2 and 3
## York County, Pennsylvania

## July 2019

## U.S. Nuclear Regulatory Commission
## Rockville, Maryland

Enclosure

## Introduction

On July 10, 2018, the U.S. Nuclear Regulatory Commission (NRC) received an application from Exelon Generation Company, LLC (Exelon). The application requested subsequent license renewal of the renewed facility operating licenses for the Peach Bottom Atomic Power Station, Units 2 and 3 (Peach Bottom). Peach Bottom is located in York County near Delta, Pennsylvania, on the west bank of Conowingo Pond. In its application, Exelon requests license renewal for a period of 20 years beyond the current license expiration dates: specifically, to August 8, 2053 for Peach Bottom Unit 2 and July 2, 2054 for Peach Bottom Unit 3.[1]

The purpose of this report[2] is to provide a concise summary of the determinations reached regarding stakeholder input to the scope of the NRC staff's environmental review of this application.

This report is structured in three sections:

A. The Peach Bottom Public Scoping Period
B. Public Comments and Responses
C. Lists of Commenters and Comment Locations

## A. The Peach Bottom Public Scoping Period

### Background

The Peach Bottom application, and all other public documents relevant to the subsequent license renewal, are available in the NRC's Agencywide Documents Access and Management System (ADAMS). The ADAMS Public Electronic Reading Room is accessible at http://www.nrc.gov/reading-rm/adams.html. Persons who encounter problems in accessing documents in ADAMS should contact the NRC's Public Document Room (PDR) reference staff by telephone at 1-800-397-4209 or 301-415-4737 or by e-mail at pdr.resource@nrc.gov.

For additional information, the NRC staff have made available a Web site with specific information about the Peach Bottom subsequent license renewal at https://www.nrc.gov/reactors/operating/licensing/renewal/applications/peach-bottom-subsequent.html. This website includes application information, the licensing schedule, opportunities for public involvement, project manager information, and other relevant information. In addition, important documents including public comments are available at the Federal rulemaking Web site https://www.regulations.gov/, under Docket ID NRC-2018-0130.

On July 10, 2018, as part of its application, Exelon submitted an environmental report (ER) to the NRC, located in ADAMS under Accession No. ML18193A689. Exelon prepared the ER in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51, which contains the NRC's requirements for implementing the National Environmental Policy Act of 1969, as amended (NEPA).[3] Exelon subsequently supplemented its application by letters dated

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[1] The current Peach Bottom Unit 2 renewed facility operating license (DPR-44) expires at midnight on August 8, 2033; the current Peach Bottom Unit 3 renewed facility operating license (DPR-56) expires at midnight on July 2, 2034. ADAMS Accession Nos. ML052720266 and ML052720269, respectively.
[2] The NRC's requirements for conducting the scoping process and for preparing a scoping summary report are found at 10 CFR 51.28 and 51.29.
[3] The NRC's requirements for an environmental report on license renewal are found at 10 CFR 51.53(c)(3), 10 CFR 54.23, and 10 CFR 51.45,

September 14, 2018 (ADAMS Accession No. ML18257A143), January 23, 2019 (ADAMS Accession No. ML19023A015) and February 11, 2019 (ADAMS Accession No. ML19042A131).

The proposed renewal of a power reactor operating license requires preparation of a supplemental environmental impact statement (SEIS), which is a supplement to the Commission's NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS). The GEIS is available in two volumes at ADAMS Accession Nos. ML13106A241 and ML13106A242. In the GEIS, the NRC staff identified and evaluated the environmental impacts associated with license renewal of nuclear power plants. The NRC staff determined that a number of environmental issues were generic to all nuclear power plants (or, in some cases, to plants having specific characteristics such as a particular type of cooling system). These generic issues were designated as "Category 1" issues. An applicant for license renewal may adopt the conclusions contained in the GEIS for Category 1 issues without further evaluation, unless there is new and significant information that may cause the conclusions for its plant to differ from those of the GEIS. Other issues that were not determined generically and that require a site-specific review were designated as "Category 2" issues and are required to be evaluated in the applicant's ER.

**Scoping Process and Objectives**

The first step in developing a SEIS is to conduct a public scoping process. On September 10, 2018, the NRC published a *Federal Register* (FR) Notice describing the scoping process for the Peach Bottom license renewal application environmental review (83 FR 45692). This publication notified stakeholders of the NRC staff's intent to prepare a plant-specific supplement to the GEIS and provided the public with an opportunity to participate in the environmental scoping process. The Notice invited members of the public to submit written comments by October 10, 2018. In addition to written comments, oral comments were recorded at a public meeting held on September 25, 2018 in Delta, Pennsylvania. All comments, written or oral, were considered in the NRC's scoping process.

The scoping process provided an opportunity for the public to propose environmental issues to be addressed in the SEIS and to highlight public concerns and issues. This scoping summary report provides a summary of what the NRC heard during the scoping process, including a summary of the determinations and conclusions reached during the scoping process.

The NRC's stated objectives of the scoping process were to:

- Define the proposed action, which is to be the subject of the supplement to the GEIS;
- Gather input on the scope of the supplement to the GEIS and identify the significant issues to be analyzed in depth;
- Identify and eliminate from detailed study those issues that are peripheral or are not significant, or were covered by a prior environmental review;
- Identify any environmental assessments and other EISs that are being or will be prepared that are related to, but are not part of, the scope of the supplement to the GEIS being considered;
- Identify other environmental review and consultation requirements related to the proposed action;
- Indicate the relationship between the timing of the preparation of the environmental analyses and the Commission's tentative planning and decisionmaking schedule;

- Identify any cooperating agencies and, as appropriate, allocate assignments for preparation and schedules for completing the supplement to the GEIS to the NRC and any cooperating agencies; and
- Describe how the supplement to the GEIS will be prepared, including any contractor assistance to be used.

The NRC staff's conclusions reached, including the significant issues identified, follow.

**Define the Proposed Action**

The NRC's proposed action in this instance is to determine whether to renew the Peach Bottom operating licenses for an additional 20 years.

**Scope of Review and Significant Issues; Issues that are not Significant**

The scope of the SEIS includes an evaluation of the environmental impacts of and reasonable alternatives to Peach Bottom's subsequent license renewal. The "Scoping Comments and Responses" section of this report includes specific issues identified by the scoping comments. The NRC staff responses explain whether the issues will be addressed in the SEIS, and if so, where in the SEIS they will be addressed. Issues that are not significant, or otherwise out of scope, are identified as well.

For Peach Bottom's subsequent license renewal, the NRC will follow the structure provided in NUREG–1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (the GEIS). The GEIS evaluates 78 environmental issues related to plant operation and classifies each issue as either a Category 1 issue (generic to all nuclear power plants) or a Category 2 issue (specific to individual power plants). Unless new and significant information is discovered, the NRC will rely on the conclusions in the GEIS for all Category 1 issues. All Category 2 issues will be discussed in depth in the draft SEIS (DSEIS) for Peach Bottom's subsequent license renewal.

The following areas were the subject of public comments:

- Air Quality
- Aquatic Ecology
- Special Status Species and Terrestrial Ecology
- Groundwater Hydrology and Quality
- Human Health
- NEPA Process
- Radioactive Waste
- Water Resources
- Socioeconomic Justice
- License Renewal Process
- Opposition to License Renewal
- Outside Scope - Current Operational Issues and Safety Concerns
- Outside Scope - Emergency Preparedness
- Outside Scope - Natural Hazards
- Outside Scope - Other Topics

**Identification of Related Environmental Assessments and other EISs**

The NRC staff did not identify any environmental assessments being or soon to be prepared, which relate to, but are not within the scope of the SEIS. Prior completed EISs will be used in the preparation of the Peach Bottom SEIS.

**Other Environmental Review and Consultation Requirements**

In parallel with its NEPA review, the NRC staff is consulting with the U.S. Fish and Wildlife Service (FWS) under Section 7 of the Endangered Species Act of 1973 (ESA) to evaluate the potential impacts of the operation of Peach Bottom for an additional 20 years, on endangered and threatened species and their critical habitat. Consistent with 36 CFR 800.8(c), the NRC staff is also consulting with affected Indian Tribes and the Pennsylvania State Historic Preservation Office to fulfill its Section 106 obligations under the National Historic Preservation Act of 1966 (NHPA).

**Timing of Agency Action**

Upon completion of the scoping period and site audits, and completion of its review of Exelon's environmental report and related documents, the NRC staff will compile its findings in a DSEIS. The NRC staff will make the DSEIS available for public comment. Based on the information gathered during this public comment period, the NRC staff will amend the DSEIS findings, as necessary, and will then publish the final SEIS (FSEIS). Simultaneously with the environmental review, the NRC will document its safety review in a safety evaluation report (SER). The staff's findings in the SEIS and the SER are both factors in the NRC's decision to issue or deny a renewed license.

The current schedule is to reach a decision on the subsequent license renewal by March 2020.

**Identification of Cooperating Agencies**

No other federal agencies are participating in the environmental review as a cooperating agency.

**How the SEIS will be Prepared, Including Contractor Assistance**

The SEIS will be prepared by the NRC staff without the assistance of outside contractors. The NRC staff will address public comments received and conduct all reviews and consultations.

**Future Opportunities for Public Participation**

The NRC staff plans to issue a DSEIS for public comment in the summer of 2019. The DSEIS comment period will offer an opportunity for the participants such as the applicant, interested Federal, State, and local government agencies, Tribal governments, local organizations, and members of the public to provide further input to the NRC's environmental review process. The comments received on the DSEIS will be considered in the preparation of the FSEIS. The FSEIS, along with the NRC staff's SER, will identify the information considered and evaluations performed by the NRC staff and will provide the basis for the NRC's decision on Exelon's application for renewal of the Peach Bottom operating licenses.

**Scoping Process Conclusion**

The comments provided during the environmental scoping process identified many important issues that will be addressed by the NRC staff in its DSEIS for Peach Bottom's subsequent license renewal. Issues which do not pertain to the staff's environmental evaluation or are beyond the scope of license renewal will not be considered in the DSEIS.

## B. Public Comments and Responses

The NRC staff's responses to comments and suggestions received during the Peach Bottom environmental scoping process are summarized in this section of the report. Comments were grouped by topic or category, and comments with similar themes were further subgrouped to capture essential issues. Comments received are either quoted or summarized below. Responses are provided for each comment or subgroup of similar comments.

Each piece of correspondence was uniquely identified, and when a piece of correspondence addressed multiple issues, the correspondence was further divided into separate comments.

Section C of this report contains a table that identifies the individuals providing comments, their affiliation, if provided, and the ADAMS Accession number that can be used to locate the document containing the comment. Parenthetical numbers after each comment refer to the correspondence ID number and the comment number. Section C also provides a table indicating the location of each comment within its document of origin.

### B.1 Comments in Scope

#### B.1.1 Air Quality

**Comment:**

> I'd like to have radiation air samples taken around the plant. I'd like to see them printed in the newspaper. I know radiation is a very random thing, but we don't have any benchmark as public citizens to say oh, it's okay, this was a radiation level last week. We don't have that. I have a radiation monitor at home I use, so I can check the radiation, at least at my house. But I'd like to have that around the plant. We used to have monitors around the plant. (1-2-6)

**Response:** *This comment states concerns about radiation air samples. To comply with NRC requirements, Exelon maintains a Radiological Environmental Monitoring Program (REMP) to assess the radiological impact, if any, to its employees, the public, and the environment from plant operations. The NRC staff will describe the REMP in Section 3.1.4, "Affected Environment: Radioactive Waste Management Systems" of the DSEIS and will address any new and significant information regarding environmental radiological impacts from renewing the Peach Bottom, Units 2 and 3 licenses in Chapter 4, "Environmental Consequences and Mitigating Actions," of the DSEIS.*

**B.1.2 Aquatic Ecology**

**Comment:**

Follow-up Request 4:

"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. "([79] FR, p. 18079 [March 31, 2014])

The NRC should explain how it measures and verifies "anticipation," and what metrics are in place to ensure compliance. (2-1-8)

Request to Investigate 4:

The DEP must investigate the impact of the Environmental Protection Agency (EPA) 316 (a) and 316 (b) and establish compliance milestones and applications from nuclear power plants. (2-1-3)

**Response:** *The comment states concerns about Peach Bottom's compliance with the PA Department of Environment Protection (PADEP) requirements and water permits. Regulatory reviews under the authority of the Pennsylvania Department of Environmental Protection are separate from the NRC environmental review required under NEPA. An NRC regulation (10 CFR 51.45) requires that the applicant list other approvals, permits, and licenses that need to be obtained in connection with the proposed license renewal and their status. Section 4.7, "Aquatic Resources," of the DSEIS will discuss impacts to aquatic resources and required mitigation measures based on Exelon's current National Pollutant Discharge Elimination System (NPDES) permit and any related mitigation measures based on Section 316(a) and 316(b) of the Clean Water Act, which regulates thermal discharge and water intake structures, respectively.*

**Comment:**

Follow-up Request 8:

The NRC's conclusions [on the extended power uprate (EPU) amendment] relating to "Aquatic Resource Impacts" were based on incomplete studies, and assumed 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." ([79] FR, 18706)

Please provided the completed data analyses and supporting documents that verifies the above stated assumptions. (2-1-14)

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Follow-up Request 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." ([79] FR, pp.18075-10876 [sic]).

10 a) Please define the "small impacts."

10 b) Please explain why the NRC accepted a generic rather than a site specific evaluation.

10 c) Has the NRC 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 [Susquehanna River Basin Commission] regulations.

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

10 e) The DEP accepted a fee for entrapment and impingement and damage, but did not require Exelon remediate the impact it caused by the approved EPU.

How has the fee mitigated the impacts of entrapment and impingement? Please provide documentation. (2-1-12)

**Response:** *The commenter states concerns about impacts to aquatic resources from Peach Bottom's cooling systems, particularly from the plant's discharge of thermal effluent, and an extended power uprate that was authorized by the NRC before the application for subsequent license renewal. The commenter also expressed support for potential mitigation to reduce impacts to aquatic biota and states that Exelon plans to renew its NPDES permit with the State of Pennsylvania. In March 2019, Exelon submitted an application to renew its NPDES permit with the Pennsylvania Department of Environmental Protection. The renewal of the NPDES permit, the impacts of operation at currently authorized power levels and other related aquatic resource issues, will be discussed in Sections 3.5, "Affected Environment: Water Resources," and 4.5, "Environmental Consequences and Mitigating Actions: Water Resources," of the DSEIS. Thermal impacts on aquatic organisms is a Category 2 issue for plants with once-through cooling systems and magnitude of impacts will depend on site-specific characteristics. Thermal effluent and its impact will be discussed in Section 4.7, "Environmental Consequences and Mitigating Actions: Aquatic Resources" of the DSEIS.*

**Comment:**

Follow-up Request 9:

The conclusions stated under "Aquatic Resource Impacts" may be inconsistent with EPA 316 (b), and are based on a out dated NPDES permits. ([79] FR, p. 18075).

The NRC granted waivers based on outdated assumptions, data and studies to be concluded at a later date. The staff's conclusions were also inconsistent with the historical facts on the ground as enumerated in the discussed (sic) under III. Peach Bottom's Environmental Impacts on the Susquehanna River Basin, pp. 6-10.

Please provide current data that substantiates the conclusions posited under "Aquatic Resource Impacts" (2-1-13)

**Response:** *The commenter relates concerns about the impacts to aquatic resources caused by PB's cooling systems and compliance with NPDES permits and references the NRC environmental assessment prepared on the Extended Power Uprate (EPU), which was authorized by license amendments in 2014. The NRC staff construes them as comments on impacts of operation during the proposed renewal period. The NRC staff will conduct a separate environmental review on the potential impacts of the proposed subsequent license renewal and will consider impacts from Peach Bottom operations at the currently authorized power levels. Section 4.7, "Environmental Consequences and Mitigating Actions: Aquatic Resources," of the DSEIS will discuss impacts to aquatic resources, including the impacts from impingement, entrainment, and thermal effluent. The renewal of the NPDES permit, and other related issues, are discussed in Sections 3.5, "Affected Environment: Water Resources," and 4.5, "Environmental Consequences and Mitigating Actions: Water Resources," of the DSEIS.*

**Comment:**

Follow-up Request 5:

"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." ([79] FR, p. 18075)

Staff needs to quantify these statements and quantify impacts. (2-1-9)

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Follow-up Request 11:

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. ML13106A241). ([79] FR, p. 18076)

11 a) The NRC should specify what plan(s) are in place to confirm and monitor what and how much "chemical effluents [are] discharged".

11 b) How is the NRC going to monitor the changes or quantify the discharges? (2-1-15)

**Response:** *These comments reference the environmental assessment prepared on the EPU and express concerns about impacts from Peach Bottom's discharge of chemicals, such as chlorine, to the environment. The Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437 (GEIS), concludes that the impacts of license renewal on chemicals and other non-radiological contaminants are expected to be SMALL at all plants and the GEIS identifies these effects as a Category 1 issue. Chemical discharges are discussed in Section 3.11, "Human Health." Exelon monitors such discharges from the facility, and the State of Pennsylvania monitors whether Exelon complies with its NPDES permit. The NRC staff will conduct a review to determine whether any new and significant information regarding Peach Bottom's chemical discharge is identified during the review of Exelon's application, the scoping process, or the environmental site audit.*

**Comment:**

Follow-up Request 12:

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

Please quantify site-specific aquatic challenges and invasive species challenged based on the documented challenges that currently exist in the Susquehanna River. (2-1-16)

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Follow-up Request 13:

The DEP [Department of Environmental Protection] 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 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.

The NRC was silent on this issue.

How does the NRC plan to monitor and track Zebra mussels, Asiatic clams, shad and other biological fouling challenging the Peach Bottom Atomic Power Station Peach Bottom. (2-1-17)

**Response:** *The comments express concerns about invasive species, such as zebra mussels, spreading due to plant operations, and asked that those challenges be monitored and quantified. The NRC does not have a role in monitoring biofouling organisms or limiting plant discharge of chlorine or other chemicals used to control biofouling organisms in effluent discharged to Conowingo Dam. The State regulates effluent discharges under the Clean Water Act through the NPDES permit.*

*The GEIS concludes that the impacts of license renewal on stimulation of nuisance organisms is a Category 1 issue and that such impacts during the license renewal term would be SMALL at all plants. For the proposed Peach Bottom subsequent license renewal, the NRC staff will conduct a review to determine whether any new and significant information regarding nuisance organisms exists that would call into question the GEIS conclusion of SMALL. The NRC staff's evaluation of new and significant information will be addressed in Section 4.14, "Environmental Consequences and Mitigating Actions: Evaluation of New and Significant Information," of the DSEIS, and the NRC staff's aquatic resource issue analyses and conclusions will be addressed in Section 4.7, "Environmental Consequences and Mitigating Actions: Aquatic Resources," of the DSEIS. Additionally, Section 3.7, "Affected Environment: Aquatic Resources," of the DSEIS will discuss the current conditions within the Susquehanna River, including past actions that have influenced the current levels of native and non-native species within the Susquehanna River near Peach Bottom. Non-native species (including biofouling organisms) will be discussed in Sections 3.7.5, "Affected Environment: Non-Native and Nuisance Species," of the DSEIS, and chlorination procedures will be discussed in DSEIS Section 3.1.3.1, "Cooling Water Loop." The NPDES permit will be discussed in DSEIS Section 3.5.1.3, "Surface Water Discharges to Conowingo Pond."*

**Comment:**.

Follow-up Request 14:

In recent years, algae blooms recently "caused continuous clogging of multiple strainers of all pumps in TMI the [sic] 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 )

The NRC was silent on this in regard to the EPU at Peach Bottom.

How does the NRC plan to monitor and track algae blooms at the Peach Bottom Atomic Power Station? (2-1-18)

**Response:** *The comment relates to impacts to aquatic resources caused by Peach Bottom operations, in particular, entrainment and monitoring and tracking of algal blooms. Monitoring and tracking of algal blooms at Peach Bottom are related to water quality issues regulated by the State and are beyond the scope of the NRC staff's environmental review. Section 3.7, "Affected Environment: Aquatic Resources," of the DSEIS will discuss the current conditions within the Susquehanna River. Section 4.7, "Environmental Consequences and Mitigating Actions: Aquatic Resources," of the DSEIS will discuss impacts to aquatic resources, including impingement, entrainment, and the discharge of heated water.*

**Comment Summary:** The U.S. FWS stated it disagrees with the applicant's conclusion that the environmental impacts of the impingement of fish on the cooling water intake structure screens would be SMALL. The FWS cited a 2008 study on impingement and stated, "Neither the inner nor outer intake structure has a fish handling system, the result being 100 percent impingement mortality (IM)." The FWS noted that the Chesapeake Logperch is under consideration for Federal listing under the Endangered Species Act and is among the species that have been impinged. FWS also stated that the licensee's conclusions that impingement losses were not sufficiently high to adversely affect blueback herring and American shad populations or threaten restoration efforts were based on impingement sampling conducted when the populations were larger and not when population of both species are critically low. The Pennsylvania Fish and Boat Commission has recommended conservation actions and intends to address impingement and entrainment concerns during the applicant's National Pollution Discharge Elimination System (NPDES) permit renewal process. The FWS is also concerned that IM could affect the efforts to restore the American shad.

The FWS also noted Exelon did not propose any new technologies to address IM because of significant reductions achieved through installation of the outer intake. FWS suggests alternatives to the current Cooling Water Intake System (CWIS) and cooling approach be considered such as a closed-loop (i.e., recirculating) cooling system, installing a cylindrical wedge wire screen CWIS, replacing the current traveling screens, or installing a fish handling system. In the absence of closed-loop cooling, the FWS supports replacement of the traveling screens with a cylindrical wedge wire screen intake or the addition of a fish handling system and the continued use of helper cooling towers to reduce IM. (4-1-1)

**Response:** *This comment expresses concerns about fish impingement and mortality at the intake screen on certain fish populations and suggests ways to reduce those impacts. Section 316(b) of the Clean Water Act requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts. The regulations implementing Section 316(b) at 40 CFR 125 set best technology available standards for impingement mortality and entrainment at existing facilities. Facilities must demonstrate compliance with these standards to the U.S. Environmental*

*Protection Agency or the State (where delegated) under the NPDES program. In Pennsylvania, the PADEP is the agency that implements the NPDES program and issues NPDES permits for withdrawals and discharges from waters of the State. Through the NPDES permit, the PADEP may impose additional requirements, such as modifications to a facility's cooling system design or operation, to reduce impingement mortality or entrainment. The NRC has no authority under the Clean Water Act and no role in the NPDES permitting process.*

*Under NEPA, however, the NRC staff considers the environmental impacts of impingement and entrainment during the license renewal period. In the GEIS, the NRC determined that for plants with once-through cooling systems or cooling ponds, such as Peach Bottom, impingement and entrainment of aquatic organisms is a Category 2 issue that requires site-specific evaluation. The NRC staff will evaluate this issue and make a conclusion with respect to the proposed Peach Bottom license renewal in Section 4.7.1.1, "Impingement and Entrainment of Aquatic Organisms (Plants with Once-Through Cooling Systems and Cooling Ponds)," of the DSEIS. Section 3.7, "Aquatic Resources," of the DSEIS will describe Susquehanna River aquatic biota and habitats that form the baseline for the NRC staff's impingement and entrainment analysis. The NRC staff will address the Chesapeake logperch in Sections 3.8.1, "Species and Habitats Protected Under the Endangered Species Act," and 4.8.1, "Species and Habitats Protected Under the Endangered Species Act Under U.S. Fish and Wildlife Jurisdiction," of the DSEIS because this species is currently under the FWS's consideration for Federal listing.*

**Comment:**

> Unlike other consumptive users, in the summer of 2002, . . . Peach Bottom did not "conserve" water until the plant was forced to close to address a massive fish kill. . . Five years later in the summer of 2007, Peach Bottom-2 & 3 were detected returning water to the Susquehanna River at temperatures in excess of 110 degrees. (2-1-22)
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> "The Conowingo Pond provides a mixed warm water recreational fishery for large mouth and small mouth bass, channel catfish, white crappies, blue gill, 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. …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." . . . 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. . . (2-1-23)
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> Follow-up Request 5:
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> "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." ([79] FR, p. 18075)

Staff needs to quantify these statements and quantify impacts. (2-1-9)

Follow-up Request 6:

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

Please provide supporting data to justify the statement "impingement losses would not be great enough to adversely affect Susquehanna River aquatic populations." (2-1-10)

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Follow-up Request 12:

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

Please quantify site-specific aquatic challenges and invasive species challenged based on the documented challenges that currently exist in the Susquehanna River. (2-1-16)

**Response:** *The comments relate to the impacts to aquatic resources by Peach Bottom, in particular due to impingement and entrainment of organisms and the effect of heated water on aquatic biota. The SEIS will document the NRC staff's evaluation of the environmental impacts of renewing Exelon's operating licenses and operating Peach Bottom for an additional 20 years at current power levels, which include post-EPU power levels. Existing aquatic resources at Peach Bottom will be described in Section 3.7, "Affected Environment: Aquatic Resources," of the DSEIS. The impacts to aquatic ecology resources, including impingement, entrainment, and thermal impacts on aquatic organisms will be evaluated in Section 4, "Environmental Consequences and Mitigating Actions: Aquatic Resources," of the DSEIS. In accordance with the Council on Environmental Quality's regulations that implement NEPA, agencies should "insure [sic] the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements (40 CFR 1502.24)." As an independent agency, the NRC may defer to CEQ regulations that it has not expressly adopted, but the NRC's policy is to follow CEQ regulations that do not have a substantive impact on its regulatory functions. The NRC staff will, as described in 40 CFR 1502.23, use the best available data to inform its independent analysis of impacts to aquatic biota.*

**Comment Summary:** The FWS discussed possible thermal impacts to fish and macroinvertebrate communities and notes that "fish community monitoring data suggest a possible thermal influence on fish populations," specifically the Gizzard shad, a non-native species. It notes that the applicant's Final Report for Post-EPU Thermal and Biological Monitoring indicates that Gizzard shad may be using the warmer water in the discharge for spawning activity or as a thermal refuge. The commenter also states that the large number of Gizzard shad is affecting how well target species (i.e., the American shad and river herring) are able to enter fishways and pass through the nearby hydroelectric dam and that temperature differences between the Conowingo tailrace where the fishes enter the fishway and the Conowingo Pond may also be deterring migration of the target species and reducing spawning success.

In addition, the commenter notes that, based on the Thermal Monitoring Report, there may be a detrimental effect on the macroinvertebrate community inasmuch as monitoring stations with higher habitat scores—scored lower for number of macroinvertebrate species, presumably due to thermal impacts. Thus, FWS disagrees that the thermal discharges impact would be small. (4-1-2)

**Response:** *This comment raises concerns about impacts to fish and macroinvertebrate communities. The impacts of thermal discharges on fish and macroinvertebrate communities will be evaluated in Section 4.7, "Environmental Consequences and Mitigating Actions: Aquatic Resources," and Section 4.8, "Environmental Consequences and Mitigating Actions: Special Status Species and Habitats," of the DSEIS.*

**Comment Summary:** The FWS noted that, although the licensee states that "it is unlikely that the lowest observed dissolved oxygen concentration (4.4 mg/L) [was] injurious or caused stress to fish," the commenter observed that "an optimal DO range for successful growth and reproduction in Conowingo Pond is likely greater than or equal to 7 mg/L for many target fish populations." Therefore, the FWS disagrees that the thermal discharges will result in SMALL impacts. (4-1-3)

**Response:** *This comment raises concerns about thermal discharges and dissolved oxygen. The staff will analyze the impacts of thermal discharges as a site-specific issue, which will be discussed in Section 4.7, "Environmental Consequences and Mitigating Actions: Aquatic Resources," of the DSEIS. The GEIS (NUREG-1437) concludes that the impacts of license renewal on dissolved oxygen are expected to be SMALL at all plants and the GEIS identifies these effects of cooling water discharge as a Category 1 issue. The NRC staff will conduct a review to determine whether any new and significant information regarding Peach Bottom's cooling water discharge is identified during the review of Exelon's application or the environmental site audit. Dissolved oxygen concentrations will be discussed in Section 3.5.1.2, "Surface Water Quality," Section 14.16.2, "Water Resources," and Section 4.16, "Cumulative Impacts."*

**Comment:**

> The Lower Susquehanna River is impacted by 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 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 Plant Publication No. 242 , June 2006, p. 71.) (2-1-24)

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Request to Investigate 4:

. . . 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." . . .Seasonal flow, Act 220, and the competing demands for limited water resources may make the amount of water available for power generation unreliable. . . The NRC should investigate the potential for safety challenges by abruptly scramming the plant and forcing power reductions to accommodate a water use budget. (2-1-4)

**Response:** *The commenter states concerns about low flows on the Susquehanna River, Peach Bottom's impact on high temperatures and low water levels affecting dissolved oxygen in the Susquehanna River, and the impact of low flows on safety. The GEIS (NUREG-1437) concludes that the impacts of license renewal on dissolved oxygen are expected to be SMALL at all plants and the GEIS identifies these effects of cooling water discharge as a Category 1 issue. The NRC staff will conduct a review to determine whether any new and significant information regarding Peach Bottom's cooling water discharge is identified during the review of Exelon's application or the environmental site audit.*

*Water use conflicts, such as those that may be experienced during drought conditions, will be addressed in Sections 4.5.1, "Environmental Consequences and Mitigating Actions: Water Resources: Proposed Action;" 4.6.1, "Environmental Consequences and Mitigating Actions: Terrestrial Resources: Proposed Action;" and 4.7.1, Environmental Consequences and Mitigating Actions: Aquatic Resources: Proposed Action," of the SEIS. The impact of water availability on safety is outside the scope of the environmental review. The NRC's oversight process addresses compliance with NRC requirements that are part of the facility's current licensing basis includes mechanisms that provide for monitoring and enforcement of NRC requirements.*

### B.1.3 Special Status Species and Terrestrial Ecology

**Comment Summary:** The U.S. FWS disagrees with the applicant's conclusion that the environmental impacts of the impingement of fish on the cooling water intake structure screens would be SMALL. In doing so, it cited a 2008 study on impingement performed on behalf of the licensee. FWS noted that "neither the inner nor outer intake structure has a fish handling system, the result being 100 percent impingement mortality (IM)." The FWS also noted that the Chesapeake Logperch, which is under consideration for Federal listing under the Endangered Species Act, is among the species that have been impinged, noted concerns about Blueback herring and American Shad impingement, and noted that the Pennsylvania Fish and Boat Commission has recommended conservation actions and intends to address impingement and entrainment concerns during the applicant's National Pollution Discharge Elimination System (NPDES) permit renewal process. (4-1-1)

**Response:** *In addition to the impingement and cooling system design issues that have already been addressed in response to this same comment in section B.1.2, above, this comment expresses concern about impacts to special status species. A special status species is one that is listed or proposed to be listed as endangered or threatened under the Endangered Species Act. The concerns in this comment will be considered in Section 3.7, "Affected Environment: Aquatic Resources," and 4.7, "Environmental Consequences and Mitigating Actions: Aquatic Resources," of the DSEIS that discuss aquatic resources. The Chesapeake logperch, which is currently being considered by FWS for listing under Endangered Species Act, will also be discussed in the staff's evaluation of federally listed species in Sections 3.8, "Affected Environment: Special Status Species and Habitats" and 4.8, "Environmental Consequences and Mitigating Actions: Special Status Species and Habitats," of the DSEIS.*

**Comment Summary:** The FWS states there are four Federal trust species that could be adversely affected by vegetation management under the in-scope transmission line right-of-way: the bog turtle, bald eagle, Indiana bat, and northern long-eared bat. A survey, conducted at the request of FWS, of the wetlands within 300 feet of the project area, found no suitable bog turtle habitats, and, in a letter dated November 2, 2017, FWS concurred with the determination that the relicensing of the site would not affect bog turtles. The determination is valid for two years after the date of the FWS's letter. The FWS notes that Exelon submitted a Bald Eagle Project Screening form to the FWS, and the FWS reminds Exelon to follow the Bald Eagle Management Guidelines if work will be undertaken that affect bald eagles (which are protected under a federal statute). The FWS recommends limiting tree removal and pruning to November 15 through March 31 in order to avoid any adverse effects to the Indiana bat during their roosting season. The FWS also states that the Northern long-eared bat may also be affected; however, the project is not within a quarter mile of a hibernaculum or within 150 feet from a known, occupied maternity roost tree. (4-1-4)

**Response:** *The bog turtle, northern long-eared bat, the Indiana bat, and other federally listed species will be discussed in Section 3.8. "Affected Environment: Special Status Species and Habitats." The NRC staff will evaluate the potential impacts of license renewal on these and other federally listed species in Section 4.8, "Environmental Consequences and Mitigating Actions: Special Status Species and Habitats," of the DSEIS. The bald eagle will be discussed in Section 3.6, "Affected Environment: Terrestrial Resources," of the DSEIS.*

### B.1.4 Groundwater Hydrology and Quality

**Comment:** I'm concerned about the tritium leakage seeping into the ground. I think there was mention made of the pipes degrading. How much more can this area take? (1-2-5)

**Response:** *The commenter states concerns about leakage from the facility getting into groundwater. Existing groundwater conditions, including groundwater quality at Peach Bottom, will be described in Section 3.5.2, "Affected Environment: Groundwater Resources," of the DSEIS. The impacts to groundwater resources associated with the Peach Bottom license renewal, including impacts from the release of radionuclides to groundwater, will be evaluated in Section 4.5.1, "Environmental Consequences and Mitigating Actions: Water Resources," of the DSEIS.*

*To comply with NRC requirements, Exelon maintains a Radiological Environmental Monitoring Program (REMP) to assess the radiological impact, if any, to its employees, the public, and the environment from plant operations. The NRC staff will describe the REMP in Chapter 3, "Affected Environment," of the DSEIS.*

### B.1.5 Human Health

**Comment:**

> You can't see into the future. There was a few years ago some workers received a blast of radiation. Nobody knew it was going to happen. Of course, you didn't know. You wouldn't have let it happen. But this is the thing I'm concerned about. I'm not concerned about what you know. I'm concerned about what we don't know is going to happen. And we're just reacting to okay, this happened. Now we can fix it. Well, I don't want something really bad to happen and then it goes beyond fixing. (1-2-3)
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> . . . Environmentally, it has very little impact. Maybe there's going to be some from radiation. We'll have to work on that and see how that works out. . . (1-3-1)

**Response:** *These comments express concerns about radiological hazards to workers and the public. Radiation exposures to plant workers and radiation exposures to the public during license renewal were evaluated in the GEIS and were both determined to be a Category 1 issues. The GEIS concludes that occupational doses during the renewal period are expected to be within the range experienced during current operations and well below regulatory limits. The GEIS also states that applicable regulatory dose limits to the public are not expected to be exceeded. The GEIS determined that the impacts of radiation exposure to workers and the public are both SMALL. The NRC staff will describe occupational doses to Peach Bottom, Units 2 and 3, workers in Section 3.11, "Affected Environment: Human Health," of the DSEIS. Human health impacts caused by radiation exposures to the public will also be discussed in DSEIS Section 3.11. Any new and significant information regarding occupational or public dose impacts will be discussed in Chapter 4, "Environmental Consequences and Mitigating Action," of the DSEIS.*

**Comment:**

. . . But you know, on a broader environmental impact, another concern is that -- and here again where the industry and the regulator have let us down is that in 2010, the U.S. Nuclear Regulatory Commission set out to do public health studies around operating nuclear power stations, basically predicated on the license renewal process.

The idea of cancer around nuclear power stations has been prevalent all across the country. In 1990, the Massachusetts Department of Public Health issued a study that found a four-fold increase in a rare adult leukemia around the Pilgrim Nuclear Power Station in the five communities that were closest to the Pilgrim Nuclear Power Station. And so that study went through a peer review. It's been published and republished and it has raised loads of questions about the incidence of cancer clusters and concerns that are directly related to the proximity and duration of residency to operating nuclear power stations. And that's still relevant for the Peach Bottom nuclear power plant as they now seek to extend their operation out to a total of 80 years.

So the NRC did go about contracting with the National Academy of Sciences (NAS) in 2010. NAS started its process to do a pilot. It was a two-phase program. And to the disappointment of all of us who were following this along, the NRC basically scuttled that study in 2015, based on the fact that they thought that the NAS projection that it would take three years and $8 million to do a cancer study around eight pilot projects in the United States was not worthy of their time and effort and money. That speaks volumes to a production agenda, not a public health and safety agenda.

And we're still trying to revive the NAS effort to look at cancers around nuclear power stations like the Department of Public Health in the State of Massachusetts identified in a peer-reviewed study.

In fact, it's quite apparent that the NRC claims to protect public health, but its radiation exposure standards fail to account for things like impacts on the placenta, impacts on fetal blood forming cells, impacts on fetal and embryonic organs, estrogenic impacts, disproportioned impacts on women, genetic impacts past the second generation, cumulative damage of repeated radiation exposure. These are not incorporated -- and this is exactly what the National Academy of Sciences was setting out to do in laying out two methodologies for epidemiology and the effect of living downwind, downstream, in proximity to operating nuclear power stations.

Let me just say that there's no excuse for the NRC to scuttle that study and in fact, the issue clearly demonstrates another example of where the Agency and the industry have colluded to put the cart before the horse, just as we should be requiring material samples from decommissioned nuclear power stations rather than bury these bodies whole without an autopsy. That is just as unjustified as going forward with extending reactor operating license out to 80 years without doing cancer studies around the plants that have been operating since the 1960s. Thank you. (1-1-3)

**Response:** *The commenter expresses concerns about the need for cancer and public health studies at older plants. For information on the biological effects of radiation and the NRC's exposure limits, please see the Backgrounder on Biological Effects of Radiation, which is available on the public website at https://www.nrc.gov/reading-rm/doc-collections/fact-*

*sheets/bio-effects-radiation.html. NRC regulations in 10 CFR Part 20 include dose limits for minors and embryos/fetuses. The effect of doses to the public related to license renewal were evaluated in the GEIS and determined to be a Category 1 issue. The GEIS found those impacts to be SMALL. The NRC Staff will describe human health impacts of license renewal at Peach Bottom Units 2 and 3 in Section 3.11, "Affected Environment: Human Health," of the DSEIS. Any new and significant information regarding human health impacts will be discussed in Section 4.11, "Environmental Consequences and Mitigating Actions: Human Health," of the DSEIS.*

*Regarding the National Academy of Science's proposed cancer study, the NRC declined to continue it because it was unlikely to be able to answer the basic question about risk. The sample size around the intended power plants would have been too small to statistically estimate the risk of cancer, therefore, the study would have been of limited use. More information on the study is available on the NRC's public website at https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/bg-analys-cancer-risk-study.html.*

**Comment:**

> Neither DEP [Pennsylvania Department of Environmental Protection], NRC or SRBC [Susquehanna River Basin Commission] 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 of quagga mussels.
>
> How does the NRC plan to monitor and track micro and macro fouling challenges at the Peach Bottom Atomic Power Station? (2-1-27)

**Response:** *The comment discusses health, safety and structural issues caused by, and the need for monitoring and tracking of, micro and macro fouling challenges, and microbiologically influenced corrosion. The GEIS concludes that the impacts of license renewal on stimulation of nuisance organisms are not expected to be a problem during the license renewal term at most operating plants, and that impacts would depend on site-specific characteristics. Section 3.11, "Affected Environment: Human Health" of the DSEIS will discuss the current conditions of microbiological issues within the environs near Peach Bottom. Zebra mussels and other nuisance organisms were discussed above in response to a previous comment.*

*The NRC does not have a role in monitoring biofouling organisms or limiting plant discharges of chemicals used to control biofouling organisms. The State regulates effluent discharges under the Clean Water Act through the NPDES permit. The monitoring and tracking of micro and macro fouling challenges at Peach Bottom and other water quality issues are matters that are regulated by the Commonwealth of Pennsylvania under the Clean Water Act. Thus, plans for the monitoring and tracking of water quality will not be discussed in the environmental review of the impacts of subsequent license renewal that is documented in the DSEIS. The adequacy of Peach Bottom's programs to handle fouling (micro, macro and biological) and microbiologically influenced corrosion during the renewal period will be considered during the NRC staff's safety review and documented in its safety evaluation.*

### B.1.6 NEPA Process

**Comment:**

> I'm in opposition to extending the license. I think we need an independent review board because the NRC has a vested interest in seeing that this plant goes on. If there aren't any nuclear power plants, who needs the NRC? So I think we need to have somebody like Congress, perhaps the state legislatures of Maryland and Pennsylvania make the decision and vote on whether to keep this plant open or not. (1-2-1)

**Response:** *The commenter states concerns about the independence of NRC. The NRC, an independent agency of the Federal government, regulates all civilian uses of nuclear material, including medical, power plant, and construction uses. Chapter 1 of the DSEIS will describe the purpose and need for the proposed action (issuance of renewed licenses). The proposed action provides an option that allows for power generation capability beyond the term of the current nuclear power plant operating licenses to meet future system generating needs, as such needs may be determined by other energy-planning decisionmakers. This definition of purpose and need reflects the NRC's recognition that, unless there are findings in the safety review required by the Atomic Energy Act or findings in the NEPA environmental analysis that would lead the NRC to reject a license renewal application, the NRC does not have a role in the energy-planning decisions as to whether a particular nuclear power plant should continue to operate. NRC activities are subject to oversight by the U.S. Congress. The concern that a federal or state legislature should decide nuclear power licensing raises an issue that is outside the scope of this environmental review.*

**Comment Summary:** Comments expressed concerns about how the NRC defines scientific terms, such as "plume" and "mixing zone," and how the NRC describes impacts such as "routinely", "slightly larger," and "significantly." Each comment that identified other resource areas or topics are listed separately and addressed below under the appropriate resource area or topic. (2-1-5, 2-1-6, 2-1-7, 2-1-11)

**Response:** *The SEIS supporting the Peach Bottom Subsequent License Renewal will define scientific terms that are used and will be written in plain language to the extent practicable. The public will have the opportunity to comment on definitions that appear in the DSEIS when it is published for comment.*

**Comment:** The U.S. Environmental Protection Agency listed the following recommendations about the scope of the EIS:

- The NEPA document should include a clear explanation of the underlying purpose and need for the proposed action. The purpose and need statement is important because it helps explain why the proposed action is being undertaken, the objectives the project intends to achieve, the measures to determine how well alternatives meet need. The purpose of the proposed action is typically the specific objective of the activity. The need should explain the underlying problem for why the project is necessary.
- The EIS should provide context for the study area, other efforts being performed in the area, communication planning, etc.

- Alternatives analysis should include the suite of activities or solutions that were considered and the rationale for not carrying these alternatives forward for detailed study. Please feel free to reach out [to] EPA to discuss Alternatives moved forward to detailed study.
- It is recommended that a narrative describing aquatic resources and functions be included in the NEPA document. We suggest a narrative be provided that includes: a discussion of hydrology, including sources, and direction of flow; the vegetative communities in the impact area, including size of trees, percent [of] canopy cover, and presence of invasive species; soil type(s); and an assessment of expected functions based on the hydrogeomorphic type, ecological community, and surrounding land use. Wetlands present on, or immediately surrounding the site should be delineated. Photos are recommended. Some information on resources may be gained from public websites including:
    - EnviroMapper[1]: https://www.epa/gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system
    - Envirofacts[2]: https://www3.epa.gov/enviro/
    - NEPAssist[3]: https://www.epa.gov/nepa/nepassist
    - 303(d) Listed Impaired Waters: https://www/epa/gov/exposure-assessment-models/303d-listed-impaired-waters The EIS should identify if any affected water resources are listed in the CWA § 303(d) impaired waters list.
    - Watershed Resources Registry: https://watershedresourcesregistry.org/index.html. This newly released mapping and screening tool prioritizes areas for preservation and restoration of wetlands, riparian zones, terrestrial areas, and stormwater management across several states in the mid-Atlantic region, including Pennsylvania. This tool is useful for planners to access environmental data to avoid impacting natural areas and identify optimal mitigation areas.
- Stormwater ponds, best management practices (BMPs) and construction staging areas should not be located in existing wetlands and streams.
- Please indicate in the EIS what permits will be sought and required from the Commonwealth and Federal governments.
- Coastal flood protection elements mentioned in your correspondence are of great value in designed for flood-risk reduction. For this or future projects, please consider design suggestions and incorporation of Low Impact Development (LID) features. Technical guidance in implementing green infrastructure (GI) practices and LID can be found at: https://19january2017snapshot.epa.gov/sites/production/files/2015-09/documents/eisa-438.pdf and www.epa/gov/greeninfrastructure. We suggest LID options be considered for design of features such as parking, paving, and landscaping. Other information can be found at www.epa/gov/nps/lid; U.S. EPA's Smart Growth Website: www.epa.gov/smartgrowth; and the International Stormwater BMP database: http://bmpdatabase.org.
- The NEPA document should include an analysis of any hazardous sites or materials. Please also address the status of any ongoing or past remediation efforts in the project area, including any groundwater contamination. We suggest any additional soil or water sampling, assessment of potential exposure to workers or adjustments to construction methods be considered, if needed.

- An evaluation of air quality and community impacts, including noise, light and possible traffic impacts, should be included in the document. Please also include General conformity status.
  Environmental Justice (EJ) should also be evaluated, including the identification of potential communities of concern, and meaningful and timely community involvement, public outreach, and access to information. Please consider application of a tool developed by EOA to help users identify areas with EJ population: https://www.epa.gov/ejscreen. Additionally, please consider referring to "Promising Practices for EJ Methodologies in NEPA Reviews": https://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews
- EPA recommends the EIS consider the positive or adverse impacts and relevance to the Chesapeake Bay.
- The study should evaluate and discuss secondary and cumulative impacts, as defined by CEQ (40 CFR 1508.7 and 1508.8), of the proposed actions. Impacts may be positive or adverse (see CEQ-1997- "Considering Cumulative Effects Under the National Environmental Policy Act").
- The study should discuss and evaluate water quality impacts including thermal discharges based on most recent assessments and modeling techniques. In accordance with Section 316 of the Clean Water Act the study should include operational assessment of the cooling water system to assure that thermal discharges are meeting water quality standards and that the cooling water system adverse impacts (Thermal, Impingement and Entrainment) are meeting the Best Technology Available (BTA). EPA considers closed looped cooling water system to be included as BTA.
- At your convenience, please provide EPA a list of agencies contacted regarding this project and any entities invited to be cooperating agencies. An EIS should include a Distribution List of agencies, organizations, and persons to whom copies of the document were sent as indicated in 40 CFR 1502.10 under "Recommended format" and 1502.19.

[Footnotes]

[1]The Watershed Assessment, Tracking & Environmental Results System (WATERS) unites water quality information previously available only from independent and unconnected databases.
[2]Includes enforcement and compliance information
[3]NEPAssist is a tool that facilitates the environmental review process and project planning in relation to environmental considerations. The web-based application draws environmental data dynamically from EPA Geographic Information Systems databases and web services and provides immediate screening of environmental assessment indicators for a user-defined area of interest. These features contribute to a streamlined review process that potentially raises important environmental issues at the earlier stages of project development.

**Response:** *These recommendations about the purpose of the action, the context of the EIS study area, alternatives, aquatic resources, stormwater ponds, required permits, coastal flood protection, hazard analyses, air quality and community impacts, environmental justice, Chesapeake Bay impacts, secondary and cumulative impacts, water quality impacts, agency contacts, and the distribution list will be considered in Chapters 1, 3, 4, and 8 of the DSEIS. The NRC staff conducts its review by building upon decades of experience in analyzing the environmental impacts from power plant operation. In 2013, the NRC staff published a revised GEIS, which identified 78 environmental impacts due to the operation of nuclear power*

*plants. The NRC staff analyzed the impacts to these 78 environmental issues based on the knowledge gained during 40 previous license renewals as well as new research, findings, and public comments. The staff determined that 59 of the environmental issues were the same at all nuclear power plants. For the other 19 issues, the NRC staff determined that these issues were site-specific, or that the impacts varied depending upon the environment surrounding the power plant and the operational conditions. Therefore, the analysis for the Peach Bottom license renewal will focus on the 19 site-specific environmental resource issues. The proposed action does not include refurbishment and therefore does not have any associated construction or changes to the plant. Communications with the public will follow established processes related to scoping, DSEIS and SEIS issuance and associated requests for comments.*

**Comment Summary:** The commenter states concerns about the need to prepare an EIS and notes that the initial Environmental Impact Statement for the operation of Peach Bottom was completed prior to the enactment of many significant State environmental laws and Section 316(b) the Clean Water Act. (2-1-19)

**Response**: *NRC regulations that implement the requirements of the National Environmental Policy Act of 1969, as amended (NEPA), are in 10 CFR Part 51. Those regulations require that the renewal of a power reactor operating license be documented in a supplemental environmental impact statement (SEIS), which supplements the Commission's GEIS (NUREG-1437) that was issued after the enactment of most state and federal regulations cited by the commenter. The NRC staff will perform an environmental review and prepare a SEIS in accordance with the NRC's requirements. The DSEIS will include information on the status of compliance with relevant laws.*

### B.1.7 Radioactive Waste

**Comment:**

> I'm concerned about the dry cask storage, how much more space is needed. I think there were questions about the degrading of the concrete and we're worried about that. I'd like to know the radioactive half-life of the material that's being stored in these casks. It's on site. It's here. (1-2-2)

**Response:** *The commenter is concerned about onsite storage of spent nuclear fuel. Onsite storage of spent nuclear fuel (in dry casks or pool storage) was determined in the GEIS to be a Category 1 issue and the impacts during license renewal were determined to be SMALL. The NRC staff will describe the management of radioactive waste in Section 3.1.4, "Affected Environment: Radioactive Waste Management Systems," and Section 4.13, "Environmental Consequences and Mitigating Actions: Waste Management," of the DSEIS. An expansion of the current dry cask storage system would be under Exelon's General License for spent fuel storage and would be subject to NRC oversight and inspection. More information on the environmental impacts of the storage of spent fuel is available in the Generic Environmental Impact Statement for Continued Storage of Spent Fuel (NUREG-2157,* https://www.nrc.gov/docs/ML1419/ML14196A105.pdf*).*

### B.1.8 Water Resources

**Comment:**

. . . 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. . . Water shortages on the Lower Susquehanna reached critical levels in the summer of 2002. . . Ten years later in April of 2012, the Susquehanna reached record seasonal lows, matching drought conditions of 1910 and 1946. . . ." (2-1-25)

**Response:** *The commenter is concerned about the consumptive use of water by Peach Bottom and notes low water in the Susquehanna River and drought conditions. The scope of the SEIS will be to document the NRC staff's evaluation of the environmental impacts of renewing Exelon's operating licenses and operating Peach Bottom for an additional 20 years at current power levels, which include the extended power uprate. The NRC staff's evaluation will also consider operational changes that have occurred since the NRC completed its review of the environmental impacts of initial license renewal in 2003. Existing surface water and groundwater conditions, including water use at Peach Bottom, will be described in Section 3.5, "Affected Environment: Water Resources," of the SEIS. The impacts to surface water and groundwater resources, including consumptive use, will be evaluated in Sections 4.5.1, "Environmental Consequences and Mitigating Actions: Water Resources: Proposed Action;" 4.6.1, "Environmental Consequences and Mitigating Actions: Terrestrial Resources: Proposed Action;" and 4.7.1, Environmental Consequences and Mitigating Actions: Aquatic Resources: Proposed Action," of the SEIS.*

**Comment:**

The regional changes include a number of markers that the DEP and the NRC must address when considering Exelon's EPU request, including 1a) reducing the duration of consumptive use and withdrawal approvals from 25 years to 15; 1b) ending the recognition of "pre-compact" or "grandfathered" consumptive uses or withdrawals upon a change of ownership; and, 1c) no longer allowing the transfer of project approvals when a change of ownership occurs; and a requirement that sponsors of consumptive use projects involving ground or surface water withdrawals request approvals for the consumptive use and the withdrawals. (2-1-1)

The SRBC stated, ". . . 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. . . .(2-1-2)

**Response:** *The commenter is concerned about the consumptive use of water by Peach Bottom and notes conditions for regional water use coordination through the Susquehanna River Basin Commission and the Pennsylvania Department of Environmental Protection. The scope of the SEIS will be to document the NRC staff's evaluation of the environmental impacts of the proposed subsequent license renewal, which would authorize Exelon to operate its Peach Bottom units up to an additional 20 years at current power levels, which encompass the extended power uprate. The NRC staff's evaluation will also consider operational changes that have occurred since the NRC completed its review of the environmental impacts of initial license renewal in 2003. Existing surface water and groundwater conditions, including water withdrawal and consumptive uses at Peach Bottom, will be described in Section 3.5, "Affected Environment: Water Resources," of the DSEIS. The impacts to surface water resources, including water withdrawal and consumptive uses, will be evaluated in Section 4.5,*

*"Environmental Consequences and Mitigating Action: Water Resources," of the DSEIS. Existing aquatic resources will be described in Section 3.7, "Affected Environment: Aquatic Resources," of the DSEIS. The impacts to aquatic resources, including required measures to minimize adverse environmental impacts, will be evaluated in Section 4.7, "Environmental Consequences and Mitigating Action: Aquatic Resources," of the DSEIS. The NRC staff will consider the impacts to water users within Conowingo Pond and the Susquehanna River below Conowingo Dam as part of the cumulative impacts analysis for surface water resources in Section 4.16.2, "Environmental Consequences and Mitigating Action: Cumulative Impacts: Water Resources," of the SEIS. An environmental impact statement is being prepared for the subsequent license renewal application review.*

**Comment:**

> . . . SRBC is vested with very broad authority in the areas of water resources planning, management, conservation, development, utilization, and allocation within the jurisdictional area of the Susquehanna River Basin.
>
> . . . SRBC regulates water withdrawals and consumptive use of water…. Furthermore, Peach Bottom is included in the SBCR's "Comprehensive Plan for the Water Resources of the Susquehanna River Basin" (Comprehensive Plan) as mandated by Article 14 of the Compact. The project has a significant effect on the Comprehensive Plan and could have an adverse or adverse cumulative effect on the water resources of the basis, if not properly regulated by SRBC. . . . . . Consumptive use is defined by SRBC as the loss of water withdrawn from the basin through a process by which the water is not returned to the waters of the basin undiminished in quantity, including but not limited to evaporation, transpiration by vegetation, incorporation in products during their manufacture, injection into a subsurface formation and diversion out of the basin. . . (5-1-1)

**Response:** *The comment explains the SRBC's jurisdiction over Peach Bottom's water withdrawal and consumptive uses of water resources and defines consumptive use. Existing surface water uses, including surface water withdrawals and consumptive water use associated with Peach Bottom operations, will be described in Section 3.5, "Affected Environment: Water Resources," of the DSEIS. Section 3.5 of the DSEIS will also discuss the SRBC and the environmental quality standards, requirements, and permits applicable to Peach Bottom's operations.*

**Comment:**

> Changes to operation and permitting of Peach Bottom, including but not limited to changes in mitigation and approval term, need to be included in the SRBC Comprehensive Plan. Additionally, Peach Bottom is only one of several water users operating within the Conowingo Pond, and a portion of SRBC review needs to consider any potential adverse cumulative effects on other users. Therefore, application for renewal of the Docket with the SRBC will need to be submitted by Exelon requesting approval of all withdrawals and consumptive use, any changes in water use and extension of the term from the current expiration date of July 3, 2034, to a term consistent with the NRC Subsequent License Renewal Term.

The only source of water currently approved by SRBC by Peach Bottom is withdrawal from the Susquehanna River. SRBC staff attended the September 25, 2018, Subsequent License Renewal Scoping Meeting for Peach Bottom Units 1 and 2, where it was mentioned by NRC staff that Peach Bottom has wells that are used. Peach Bottom currently has no approval from the SRBC for groundwater withdrawal. The NRC should clearly identify all withdrawals including all groundwater sources, purpose and use of water from each withdrawal, and should evaluate if SRBC approval for the withdrawal or use of water from those sources is required. (5-1-2)

**Response:** *The commenter notes that Exelon should apply for renewal of its Susquehanna River Basin Commission Docket to a term consistent with the subsequent renewal of the plant, that Peach Bottom is currently only approved to obtain water by withdrawal from the Susquehanna, and that all water withdrawals and their uses should be identified. Existing surface water and groundwater conditions, including water use at Peach Bottom, will be described in Chapter 3, "Affected Environment," of the DSEIS. Chapter 3 will include discussions of environmental quality standards, requirements, and permits applicable to Peach Bottom's operations, including Exelon's compliance with the SRBC.*

### B.1.9 Socioeconomics

**Comment:**

Because part of what happens here, you talk about the socio-environment. All of our plants are in a society and you're living nearby. So we have to be aware of that. (1-3-1)

**Response:** *This excerpt from Comment 1-3-1, which will be discussed further in Section B.2.4 of this report, mentions socioeconomics. Socioeconomics will be discussed in Section 4.10, "Environmental Consequences and Mitigating Actions: Socioeconomics," of the DSEIS.*

### B.1.10 License Renewal Process

**Comment:**

The purpose of being here tonight is to address some concerns that we have about the subsequent license renewal process. Going back to the question that I originally asked, you know, the reason I asked about differentiating between material -- the issue of safety and environmental consequences is because the two are inextricably linked. We believe that the safety issues should be presented in the community although that is an opportunity to meet and greet and we don't exactly understand why the safety portion has been relegated to essentially blind communication.

And the reason is that safety obviously is related to environmental consequence. Peach Bottom, for example, has miles of buried pipe that much of it is original construction with when the plant was built. This pipe has been corroding, both from the outside wall and eroding from the inside and Peach Bottom has had a series of leaks of radioactive effluent into groundwater, so here you have the consequence of a material condition of the plant that has resulted in an environmental consequence.

So again, the whole idea of material performance into the subsequent license renewal process has a direct bearing on the environmental consequence to this community. And it goes beyond just buried pipe. We're talking about the material condition of concrete structures of the performance of electrical wiring and that could be submerged, but also subject to heat and all kinds of degradation.

In fact, there are about now 16 different known degradation mechanisms that are ongoing in varying grades, some severe, with regard to like embrittlement of the reactor pressure vessel, stress corrosion cracking of the -- of weld material. Any of these failures, just like those pipes that are buried under the Peach Bottom plant, should they fail in their performance, they will have environmental consequence. (1-1-1)

So to make a long story short, what we see is essentially a failure of the operator, in this case Exelon Nuclear, and the regulatory agency, the U.S. Nuclear Regulatory Commission, to make this link in the license renewal process for the 60- to 80-year extension. And particularly by missing the opportunity to do the material analysis of the Peach Bottom plant using other reactor designs that Exelon is operating or is now in the process of decommissioning actually, where they could evaluate the material condition of Peach Bottom to sort of benchmark it with the material condition of a closed nuclear power plant.

So on September 17th of this year, Exelon permanently closed the Oyster Creek Nuclear Power Station in Lacey Township, New Jersey. However, both the NRC and Exelon have basically stated that they are not interested in assessing the material condition post-operation for Oyster Creek and relate that condition to Peach Bottom's current condition. And they're only a couple years apart. Oyster Creek came on line in 1969 and Peach Bottom in the early 70s.

And so it's curious that the industry and the Agency are missing an opportunity to use the material assessment of metals, of electrical cable, of concrete, of piping to assess the material condition of Peach Bottom into this projected license renewal period which again is it's (sic) going to be extensive.

Why not? Why not take a peek at the embrittlement of the welds in Oyster Creek in order to ascertain the material condition of Peach Bottom in this 60- to 80-year license period.

And in fact, what is of more concern is that the national labs, and even members of the U.S. Nuclear Regulatory Commission themselves in the Office of Research, have been requesting this material, these archived samples taken from closed reactors to then make age management program assessments for license renewal.

In fact, the Office of Research in a 2015 PowerPoint that we're familiar with, as well as a March 2018 poster session that was -- we saw at the annual Regulatory Information Conference for the NRC, they're all requesting that materials be harvested from these closed reactors like Oyster Creek which is the property, still the property of Exelon Nuclear, and to do laboratory assessments of metals, of concrete, of electrical cable, and their performance into the -- projected into the license renewal period for Peach Bottom Nuclear Power Station.

Let me just read to you one of those national laboratory remarks. This one is from Pacific Northwest National Laboratory. This is from a 2017 report. So they conclude that a post-shutdown autopsy, as we call them, are necessary for "reasonable assurance that systems, structures, and components are able to meet their safety functions. Many of the remaining questions regarding the degradation of material which will likely require a combination of laboratory studies, as well as other research conducted on materials sampled from plants, decommissioned or operating." The laboratory reiterates "where available, benchmarking can be performed using surveillance specimens. In most cases, however, benchmarking of laboratory tests will require harvesting materials from reactors."

So in the absence of harvesting those materials from Exelon's closed reactor to its operating reactor in the projected time frame, they're ignoring not only a safety condition, but a condition that may very well have significant environmental consequences. (1-1-2)

**Response:** *The commenter states concerns about public participation in the subsequent license renewal process, the relationship between safety and environmental concerns, and harvesting of materials from decommissioned nuclear power plants. The NRC staff explained during the scoping meeting that, although the environmental review process is driven by NEPA and the safety review (of aging management issues) is defined by 10 CFR Part 54, there are opportunities for public involvement in both reviews. The NRC's environmental review is confined to environmental impacts of the proposed subsequent license renewal at Peach Bottom, Units 2 and 3. Comments that pertain to the managing of the effects of aging and the safety of Peach Bottom during the proposed license renewal period will be addressed during the NRC staff's safety review under 10 CFR Part 54, which requires a licensee to have a plan to manage the effects of aging. NRC guidance on acceptable aging management programs in provided in NUREG-2191, "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report" and for NRC staff reviews of SLR applications in "NUREG-2192, Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants." Decisions about current or future research activities are outside of the scope of the DSEIS and the staff's safety evaluation report."*

**Comment Summary:** This comment was included as contentions in a request for hearing and petition for leave to intervene in the Peach Bottom, Units 2 and 3, subsequent license renewal proceeding. The commenter challenges the sufficiency of Exelon's application under NRC regulations, as well as its compliance with NEPA. The commenter states that Exelon's Environmental Report (ER) violates NEPA and NRC regulation 10 CFR 51.53(c)(2) in that it fails to address accident risks posed by operation of aging reactor equipment and incorrectly claims that such accident risk is exempt from consideration by 10 CFR 51.53(c)(3). The commenter further states that Exelon's ER fails to review literature related to reactor aging phenomena beyond 60 years and to evaluate what is still unknown regarding such aging and its effects. The commenter states that the ER should also address (1) the environmental implications of reactor aging issues identified by NRC staff in SECY-14-0016, "Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal," (2) the degree to which a lack of information regarding aging reactor systems and components affects the environmental risk posed by extended operation, and (3) the significance of the declining amount of external operating experience available to Exelon related to age-related environmental risks. (7-1-1)

**Response:** *The NRC staff will evaluate these comments to determine if they identify new or significant information about environmental impacts of design-basis accidents, a Category 1 issue that the GEIS determined has SMALL environmental impacts***.**

*Comments included in hearing requests and intervention petitions are also considered separately in an NRC adjudicatory proceeding. On June 20, 2019, the Atomic Safety and Licensing Board established to rule on the commenter's petition found the contentions inadmissible and denied the petition. On July 15, 2019, the intervention petitioner filed its appeal to the Commission.*

**Comment:**

Follow-up Request 17:

The NRC identified the need for biological and thermal studies.

17 a) When are the biological and thermal studies going to be completed? Please provide the analyses and the results.

17 b) Why would the NRC approve relicensing prior to the completion of the studies?

17 c) Please provide the results of the NPDES compliance review which was delayed until after the EPU was approved in 2014. (2-1-21)

**Response:** *The comment raises issues related to the biological and thermal studies (their timing and results) and the Peach Bottom's NPDES compliance review. The NRC staff reads this comment as inquiring about biological and thermal studies that may be required by the State under the NPDES permit. Sections 3.7 and 4.7 of the DSEIS will describe State requirements for monitoring and studies to assess potential impacts to the aquatic environment resulting from impingement, entrainment, and thermal impacts. The NRC staff will perform a site-specific analysis of these potential impacts on aquatic resources in Section 4.7.1 of the DSEIS.*

### B.1.11 Opposition to License Renewal

**Comment:**

I'm in opposition to extending the license. I think we need an independent review board because the NRC has a vested interest in seeing that this plant goes on. If there aren't any nuclear power plants, who needs the NRC? So I think we need to have somebody like Congress, perhaps the state legislatures of Maryland and Pennsylvania make the decision and vote on whether to keep this plant open or not. (1-2-1)

***

NRC Commissioners are strongly urged to REJECT pending application NRC 2018-0130 (by [Exelon]) to extend License another 20 years at Peach[ B]ottom Reactor, (Lancaster PA), because there is overwhelming evidence contained in existing public record that it will be unsafe to extend License 20 years.

The latest in long history of unsafe conditions at Peach[ B]ottom reactor is Event 53650 (reported 09 30 18), which still is an imminent threat, due to NRC's failure to require all necessary reform and floodproofing, and extensive infrastructure upgrades immediately at Peach[ B]ottom nuclear reactor.

Public stakeholders in Region I are extremely threatened, as are all local residents, schools, public hospitals, plus businesses and industry , because NRC 's failure to require immediate physical plant upgrades and extensive public infrastructure retrofit at Peach[ B]ottom during countless series of earlier Emergency Event reports at Peach[ B]ottom, or require meaningful program of Corrective Actions that are necessary for safe operations, without collateral damage to upstream or downstream communities, and damage to existing taxpayers, ratepayers, or dislocation, or costs to improve air quality, water quality, and basic living conditions, or protect public health and safety.

I am a resident in Region IV (San Diego County), but I have family, friends and loved ones in Region I who are unprotected, and many who have spoken previously in opposition to overly lax policies and practices NRC applies are never considered in a meaningful way by NRC Commissioners in the past. For that reason, public stakeholders in other Regions outside Region I find this pattern of fragmentation extremely disturbing, and a common NRC analytical FLAW that threaten public stakeholders in ALL REGIONS, that NRC Commission fails to respond to, whether the case is in Virginia, Georgia, Pennsylvania, or San Onofre or Diablo Canyon in California.

During most of my adult lifetime, it's inexcusable that NRC always works harder to find excuses to NOT require immediate plant upgrades and infrastructure system UPGRADES by Licensees, whenever License Extensions are considered, and how NRC Commission typically takes actions to protect profit margins of utility, and give greater weight to Licensee's unproven claims, than the credible evidence and technical experts who are independent, outside nuclear industry and or contractors.

I'm age 67, and during past 45 years, I observed the policies and practices, rulemaking processes, Emergency Exemptions, waivers, deferrals, self-reporting policies and practices are a disgrace, and consistently fail to apply best practices, and recommendations by independent tech[n]ical experts. (3-1-1)

**Response:** *These comments express opposition to the proposed renewal and provide no new and significant information concerning environmental impacts. As such, the comments will not be evaluated further in the development of the DSEIS. The portion of the first comment concerning independence is discussed in Section B.1.5 of this report. The safety concerns in the second comment are discussed below, in Section B.2.1 of this report.*

### B.2 Comments Out of Scope

#### B.2.1 Outside Scope - Current Operational Issues and Safety Concerns

**Comment Summary:** The second comment (3-1-1) quoted in Section B-1.11, above, states that it would be unsafe to extend the license for 20 years given the history of unsafe conditions at Peach Bottom and the NRC’s failure to require the related necessary changes at the plant.

**Response:** *This comment expresses concerns about current operational issues and is therefore out of scope for the environmental review for this subsequent license renewal application. It also discusses alleged failures on the part of the NRC. Therefore, the comment in its entirely has been referred to the NRC's Office of the Inspector General. To the extent that it states opposition to the proposed renewal and identifies any environmental impacts, it is addressed in Section B.1.11 of this report.*

*The NRC addresses operational issues through its ongoing oversight of operating reactors and will continue such oversight during the term of any renewed license. Concerns about current operational issues may be raised through a petition in accordance with 10 CFR 2.206.*

**Comment:**

Follow-up Request 16:

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."

How does the NRC plan to monitor and track issues identified above from the 2014 EPU review? (2-1-20)

***

Follow-up Request 16 [sic]:

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).

How does the NRC plan to monitor and track issues identified above in the 2014 EPU review? (2-1-21)

**Response:** *The comments relate concerns that biofouling and corrosion could degrade performance of safety-related systems supplied by service water and cause safety and structural challenges at Peach Bottom, and how these conditions are related to the plant's technical specifications. This safety concern is outside of the scope of the environmental review and will not be evaluated further in the development of the DSEIS.*

*The NRC addresses potential hazards to safe operation of a nuclear power plant, including external hazards, through its ongoing oversight of operating reactors, and will continue such oversight during the term of any renewed license. In addition, the NRC staff's safety review of the subsequent license renewal application considers safety hazards and the effects of aging, such as fouling (micro, macro and biological) and microbiologically influenced corrosion, that could degrade performance of safety-related systems. The NRC staff safety review of subsequent license renewal considers whether an applicant will adequately manage the effects of aging on the intended functions of safety-related structures, systems and components (SSCs) that are described in 10 CFR Part 54. A renewed license will not be issued unless the NRC finds that there is reasonable assurance that the activities authorized by the renewed licenses will continue to be conducted in accordance with the plants' current licensing basis, and that any changes to the plants' current licensing basis for license renewal are in accord with the Atomic Energy Act and the NRC's regulations. The results of the NRC staff's safety review will be documented in the safety evaluation report for license renewal.*

### B.2.2 Outside Scope - Emergency Preparedness

**Comment:**

> I'd also like to see a 50-mile radius evacuation plan, because every time there's a major accident people are told 50 miles they have to get away, anyone within 50 miles. But the NRC is only doing 20 or 25 miles. They don't go to 50 miles. But you go to 50 miles, there's a big accident and you should have a 50-mile radius evacuation plan. What are the people in Baltimore going to do? People in Philadelphia? People within the 50-mile radius that evacuate in a major emergency. (1-2-7)

**Response:** *This comment states a concern about emergency planning. Emergency preparedness is part of the current operating license and is outside the scope of the environmental analysis for license renewal. This comment will not be evaluated further during the development of the DSEIS.*

*Emergency preparedness is required at all nuclear power plants and requires specified levels of protection from each licensee regardless of plant design, construction, or license date. Requirements related to emergency planning are stated in the regulations at 10 CFR 50.47 and Appendix E to 10 CFR Part 50. These requirements apply to all operating licenses and will continue to apply to facilities with renewed licenses.*

*The NRC has regulations in place to ensure that existing plans are updated throughout the life of all plants. For example, nuclear power plant operators are required to update their evacuation time estimates after every U.S. Census, or when changes in population would increase the estimate by either 25 percent or 30 minutes, whichever is less. Additionally, the NRC assesses the capabilities of the nuclear power plant operator to protect the public by requiring the performance of a full-scale exercise that includes the participation of various Federal, State, and local government agencies at least once every two years. These exercises are performed in order to maintain the skills of the emergency responders and to identify and correct weaknesses.*

*Because emergency planning is outside the scope of the safety review conducted under 10 CFR Part 54, it will not be addressed in the safety evaluation report.*

### B.2.3 Outside Scope - Natural Hazards

Comment:

> And I've asked in the past the greatest number on the Richter scale that this plant can withstand in an earthquake and I understand in other formulas used other than Richter scale. But I'd like to see it in Richter scale because most lay people like myself, I'm not a scientist, but I'd like to know, what is the highest on the Richter scale that this plant can withstand? And we have to think about that because a lot of times places like this where there's very few earthquakes, there will sometimes be a really gigantic earthquake. We don't know. We've only been here -- when I say we, the Europeans have only been here maybe 300, 400 years which is a very small time geologically.
>
> How high does the river have to rise before the plant is threatened? What's the number of feet it has to rise? I think that's pretty simple. And I'd like to get these questions answered. I don't want a book. Just give me okay, this many feet. This on the Richter scale. (1-2-4)
>
> ***
>
> The Susquehanna River 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 1,4000 communities in the river basin, 1,160 have residents who live in flood-prone areas." (7th Annual Susquehanna River Symposium, Bucknell University, October 12-12, 2012) (2-1-26)

**Response:** *These comments relate concerns about natural hazards, specifically seismic events and flooding and will not be considered further in the development of the DSEIS. The design basis levels for seismic events and flooding are outside the scope of the environmental review. The NRC addresses potential hazards to safe operation of a nuclear power plant, including external hazards, through its ongoing oversight of operating reactors and will continue its oversight during the term of any renewed license. Seismic, flooding, and related natural hazards were considered in the original siting and design of nuclear power plants in accordance with 10 CFR Part 100 and are part of the licensing bases for operating plants, and thus, were considered in previous licensing actions. Such design conditions are documented in Peach Bottom's Updated Final Safety Analysis Report. Both seismic and flooding hazards were re-evaluated for all operating nuclear plants. Information on the re-evaluation at Peach Bottom may be found under "Requests for Information" at https://www.nrc.gov/reactors/operating/ops-experience/japan/plants/pb2.html.*

*The current design basis flooding level for Peach Bottom is 131.4 ft NAV88, as described in the staff's response (*https://www.nrc.gov/docs/ML1728/ML17284A035.pdf*) to its flooding hazard reevaluation report.*

*For seismic hazards, the NRC uses ground motion acceleration and frequency instead of the Richter Scale. (Please see https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-seismic-issues.html.) Please see the plant-specific public website (https://www.nrc.gov/reactors/operating/ops-experience/japan/plants/pb2.html.) for documents pertaining to the seismic hazards. Note that the licensee performed a seismic probabilistic risk assessment. The NRC recently issued its review (ADAMS Accession No. ML19053A469) of that assessment.*

**B.2.4 Outside Scope - Other Topics**

**Comment:**

. . . I'm working with the Pennsylvania Nuclear Energy Caucus. That's bicameral, bipartisan, chaired by one of our state senators. And what we're looking at is trying to keep nuclear as one of our options.

Right now, we're in a position where the price of gas, natural gas, for fueling generation is so low that it's hard for us to really get a contract for say the output of TMI. So we're operating at a loss. So as a state, we need to look at okay, what do we do for the future?

So my interest here is well, what are we looking at for the future? Because it's not just keeping these plants on for another year, but long term, if they're viable.

Now I'll say one thing for Peach Bottom, one -- I'll say two. One, I worked there. I had a senior license on the plant as a staff member, so I have some history and also with the industry that all of the plants are different, different designs, different manufacturers, so you can't really say that Oyster Creek is the same as Peach Bottom. Each one has to be looked at individually.

And what we want to do at the state level is look at okay, what is really viable for the nuclear element because right now it's one of those that has a consistent output 24 hours a day. It's paid for. It's only going to cost what it's going to cost right now.

Environmentally, it has very little impact. Maybe there's going to be some from radiation. We'll have to work on that and see how that works out. Like I said, the cost of an alternate fuel being gas and the safety of that because that's coming through pipelines and loss of a pipeline can lose something like New York.

***

Okay, but basically, where are we going with this? And you mentioned that you want more public input and that's partly to the NRC saying okay, how can we structure the input or structure the medium so that the public knows what we know and can respond to what we know as the NRC, so you're not left out of the process. Because part of what happens here, you talk about the socio-environment. All of our plants are in a society and you're living nearby. So we have to be aware of that.

> You need to have the opportunity to say, hey, I'm willing to have higher prices just to not have nuclear. What's going to happen with things like gas and you're going to see it very soon. We're going to be taxing that as it comes out of the ground so the price of gas is going to go up. So that's going to make nuclear more affordable. (1-3-1)

**Response:** *The comment discusses energy policy, radiological impacts and socioeconomic impacts. State energy policy is outside of the scope of license renewal and outside of the scope of the mission of the NRC.*

*The NRC is required by 10 CFR Part 51 to consider environmental impacts in its decision-making. The portion of the comment related to radiation impacts is addressed above in Section B.1.4 of this report. The portion of the comment related to the socioeconomic environment is addressed in Section B.1.8 of this report.*

## C. List of Commenters

The following tables present the comments received by the NRC and the commenters. Table C-1 lists the commenters who provided unique comment submissions (i.e., non-form letter submissions). Unique commenter authors are identified by name and affiliation (if stated), and the ADAMS Accession Number for their comment correspondence is provided. Table C-2 provides a list of each numbered comment and where each comment is located in its source document.

# Table C-1 Individuals Providing Comments during the Scoping Comment Period

| Commenter | Affiliation (if stated) | Correspondence ID | Comment Source | ADAMS Accession Number |
|---|---|---|---|---|
| Beyond Nuclear, Inc. | [as stated] | 7 | Petition to Intervene | ML18323A749 |
| Patricia Borchmann | | 3 | Regulations.gov | ML18299A301 |
| Bruce L. Clark | Pennsylvania Nuclear Energy Caucus | 1-3 | Public Meeting Transcript | ML18288A438 |
| Toby Eaby | Susquehanna River Basin Commission (SRBC) | 5 | E-mail | ML18283B597 |
| Eric Epstein | TMI [Three Mile Island] Alert | 2 | E-mail | ML18269A040 |
| Sonja Jahrsdoerfer | U.S. Fish and Wildlife Service | 4 | E-mail | ML18282A169 |
| Ernest Guyll | | 1-2 | Public Meeting Transcript | ML18288A438 |
| Paul Gunter | Beyond Nuclear | 1-1 | Public Meeting Transcript | ML18288A438 |
| Barbara Rudnick | Environmental Protection Agency | 6 | E-mail | ML18299A210 |

## Table C-2 Comment Number and Location in Source

| Comment Number | Source (ML) | Location |
|---|---|---|
| (1-1-1) | Public Meeting Transcript (ML18288A438) | Page 25, Line 24 to Page 27, Line 12 |
| (1-1-2) | Public Meeting Transcript (ML18288A438) | Page 25, Line 24 to Page 30, Line 11 |
| (1-1-3) | Public Meeting Transcript (ML18288A438) | Page 37, Line 23 to Page 40, Line 11 |
| (1-2-1) | Public Meeting Transcript (ML18288A438) | Page 30, Line 22 to Page 31, Line 5 |
| (1-2-2) | Public Meeting Transcript (ML18288A438) | Page 31, Lines 6-11 |
| (1-2-3) | Public Meeting Transcript (ML18288A438) | Page 31, Lines 12-21 |
| (1-2-4) | Public Meeting Transcript (ML18288A438) | Page 31, Line 22 to Page 32, Line 16 |
| (1-2-5) | Public Meeting Transcript (ML18288A438) | Page 32, Lines 17-20 |
| (1-2-6) | Public Meeting Transcript (ML18288A438) | Page 32, Line 21 to Page 33, Line 5 |
| (1-2-7) | Public Meeting Transcript (ML18288A438) | Page 33, Lines 6-15 |
| (1-3-1) | Public Meeting Transcript (ML18288A438) | Page 34, Line 2 to 36, Line 10 |
| (2-1-1) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 11 |
| (2-1-2) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 12 |
| (2-1-3) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 13 |
| (2-1-4) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Pages 13-14 |
| (2-1-5) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 14 |
| (2-1-6) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 15 |
| (2-1-7) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 15 |
| (2-1-8) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 15 |
| (2-1-9) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 16 |
| (2-1-10) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 16 |
| (2-1-11) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 17 |
| (2-1-12) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Pages 18-19 |
| (2-1-13) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 18 |

| | | |
|---|---|---|
| (2-1-14) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 17 |
| (2-1-15) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Pages 19 - 20 |
| (2-1-16) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 20 |
| (2-1-17) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Pages 20-21 |
| (2-1-18) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 21 |
| (2-1-19) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Pages 12-13 |
| (2-1-20) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 22 |
| (2-1-21) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 23 |
| (2-1-22) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 9 |
| (2-1-23) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 10 |
| (2-1-24) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 8 |
| (2-1-25) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Pages 6-7 |
| (2-1-26) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 8 |
| (2-1-27) | TMI [Three Mile Island] Alert e-mail (ML18269A040) | Page 22 |
| (3-1-1) | Regulations.gov (ML18299A301) | Entirety |
| (4-1-1) | U.S. Fish and Wildlife Service e-mail (ML18282A169) | Pages 2-4 |
| (4-1-2) | U.S. Fish and Wildlife Service e-mail (ML18282A169) | Pages 4-5 |
| (4-1-3) | U.S. Fish and Wildlife Service e-mail (ML18282A169) | Pages 5-6 |
| (4-1-4) | U.S. Fish and Wildlife Service e-mail (ML18282A169) | Pages 6-7 |
| (5-1-1) | Susquehanna River Basin Commission e-mail (ML18283B597) | Pages 1-2 |
| (5-1-2) | Susquehanna River Basin Commission e-mail (ML18283B597) | Pages 2-3 |
| (6-1-1) | Environmental Protection Agency e-mail (ML18299A210) | Entirety |
| (7-1-1) | Beyond Nuclear Hearing Request and Petition to Intervene (ML18323A749) | Entirety |