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UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
GREATER ATLANTIC REGIONAL FISHERIES OFFICE  
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NOV 12 2014

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US Nuclear Regulatory Commission  
Washington, DC 20555-0001

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RULES AND DIRECTIVES  
BRANCH  
11-20-14

RE: Docket ID NRC-2014-0149  
Environmental Impact Statement for Early Site Permit at PSEG Site  
Artificial Island, Lower Alloways Creek Township, Salem County, NJ

Dear Ms. Bladey:

We have reviewed the US Nuclear Regulatory Commission's (NRC) Draft Environmental Impact Statement (EIS) for the issuance of an Early Site Permit (ESP) to PSEG Nuclear, LLC (PSEG). According to NRC, an ESP is the approval of a site or sites for one or more nuclear power facilities. Issuance of an ESP is a process that is separate from the issuance of a construction permit, an operating license, or a combined construction permit and operating license for such a facility. The ESP application and review process are designed to evaluate and resolve safety and environmental issues related to siting before the applicant makes a large commitment of resources. If the ESP is approved, the applicant can "bank" the site for up to 20 years for future reactor siting and can conduct certain site preparation and preliminary construction activities enumerated in 10 CFR 50.10(e)(1). An ESP does not authorize construction and operation of a nuclear power plant. To construct and operate a nuclear power plant, an ESP holder must obtain a construction permit and operating license. NRC considers these separate major Federal actions that require their own environmental reviews. The site being considered here is adjacent to PSEG's existing Hope Creek and Salem Nuclear Generating Stations on Artificial Island in Lower Alloways Creek Township, Salem County, New Jersey. The Philadelphia District Army Corps of Engineers (USACE) is a cooperating agency on this EIS. We offer the following comments for your consideration.

**Section 2.0 Affected Environment/Section 4.0 Construction Impacts at the Proposed Site**

Several minor updates to the discussion of species listed under the Endangered Species Act (ESA) of 1973, as amended, are necessary. Because you have determined that neither hawksbill nor leatherback sea turtles occur near Artificial Island, we recommend these species be deleted from Table 2-8. You should also note that several Distinct Population Segments (DPS) of loggerhead sea turtles are listed under the ESA; only the threatened Northwest Atlantic DPS occurs in the action area. Five DPSs of Atlantic sturgeon are listed under the ESA; subadults or adults from any of the five DPSs could occur in the action area. The sections discussing shortnose and Atlantic sturgeon should note that due to the salinity near Artificial Island, early

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**Add = A. Fetter (ahf)**



life stages (i.e., eggs, larvae and young of the year) are not expected to be present.

Throughout these sections, the NRC describes the acreages of the various habitats that would be affected by the construction and operation of a new nuclear generating station at the PSEG site. However, the numbers appear inconsistent and seem to vary from section to section even when describing the same impact to the same habitat. In addition, the impacts also appear different from those described in the Public Notice (CENAP-OP-R-2009-0157) issued by the USACE for this project. The final EIS should clearly and concisely identify all of the temporary and permanent impacts to all habitat types and clearly define the habitat types (i.e., estuarine wetlands, freshwater tidal wetlands, freshwater non-tidal, etc.).

In these sections, it states that little to no submerged aquatic vegetation (SAV) is present at the PSEG site. Survey results were not included to verify this assertion. Several species have been observed in the Delaware River, including: *Vallisneria americana*, *Myriophyllum spicatum*, *Elodea nuttallii*, *Najasjlexillis*, *Potamogeton* sp. and others (Schuyler, 1988). SAV provides valuable nursery, forage and refuge habitat for a variety of fish including striped bass (*Marone saxatilis*), alewife (*Alosa pseudoharengus*), American shad (*Alosa sapidissima*), and blueback herring (*Alosa aestivalis*). It is also an important food source for waterfowl. As water quality in the Delaware River continues to improve, more areas of SAV may be found within the River. Without additional site specific survey data, it is not possible to determine if SAV exists in the project site or if it will be impacted by the proposed project.

From the information in the DEIS, it appears that PSEG proposes to construct portions of the project, including the causeway, on lands owned by the State of New Jersey and protected by deed restrictions. We do not support the diversion of State-owned wildlife management areas for development activities. These areas are protected and managed due to their high ecological value. Wetlands fill and other construction activities on these protected areas can affect the entire wildlife management area adversely due to habitat loss, hydrologic modifications, and increases in human activity and storm water runoff.

The ecological effects of the proposed wetland fill are not adequately addressed in Section 4.0. The effects are only viewed on the large scale of the estuary as a whole. The effects on individual watersheds such as the Alloway Creek and Mad Horse Creek watersheds or individual Wildlife Management Areas are not considered. This broad scale view inappropriately diminishes the local effects of habitat loss and degradation that would result from the construction of the facility. Also not adequately addressed are the effects of wetland losses on fish, especially those identified in the EIS as occurring in the wetland creeks in and around the project area. These fish species include bluefish (*Pomatomus saltatrix*), summer flounder (*Paralichthys dentatus*), alewife, American shad, Atlantic croaker (*Micropogonias undulatus*), blueback herring, spot (*Leiostomus xanthurus*), weakfish (*Cynoscion regalis*), white perch (*Marone americana*), striped bass, bay anchovy (*Anchoa mitchili*), various killifish, silversides, mummichog and many other forage species.

## **Section 9.0 Environmental Impacts of Alternatives**

This section does not evaluate on-site alternatives to avoid and minimize impacts to aquatic resources. We recognize that as part of NRC's Early Site Permit process, PSEG has only developed a Plant Parameter Envelope (PPE), or an estimate of the highest potential impacts that could result from the construction of a new nuclear generating station. They have not yet determined if they will build the facility and what technology they will use if they choose to construct the new facility. If NRC issues an ESP, PSEG will have twenty years to make that decision. Because PSEG has not yet determined the actual footprint of the proposed new nuclear generating station, it is not possible to demonstrate compliance with Clean Water Act (CWA) 404 (b) (1) Guidelines. These Guidelines require it to first be demonstrated that potential impacts to aquatic resources have been avoided and minimized to the maximum extent practicable. For non-water dependent activities, such as this, there is a presumption in the CWA that alternatives that do not involve special aquatic sites, including wetlands, exist and that these alternatives would have less impact on the aquatic environment. In this case, it cannot be demonstrated that impacts have been minimized because a plant design has not been chosen. Alternatives may exist that would reduce the amount of dredging and fill currently being proposed.

### **Magnuson-Stevens Fishery Management and Conservation Act (MSA)**

The essential fish habitat (EFH) final rule published in the Federal Register on January 17, 2002 defines an adverse effect as: "any impact which reduces the quality and/or quantity of EFH." The rule further states that:

An adverse effect may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Based upon the information in the EIS, adverse effects to several federally managed species including bluefish, summer flounder, and others, and their prey will result from the construction activities at the site including, wetlands fill, bulkhead and barge facility construction and the dredging of the Delaware River.

Anadromous fish such as alewife, blueback herring, and American shad use the Delaware River and its tributaries including those around the project site as spawning, nursery and forage habitat. These fish are a food source for several federally managed species. Buckel and Conover (1997) in Fahey et al. (1999) reports that diet items of juvenile bluefish include *Alosa* species such as these. Juvenile *Alosa* species have all been identified as prey species for windowpane (*Scophthalmus aquosus*) and summer flounder in Steimle et al. (2000). The EFH final rule states that the loss of prey may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat and the definition of EFH includes waters and substrate necessary to fish for feeding. Therefore, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to

the prey species' habitat may also be considered adverse effects on EFH. As a result, activities that adversely affect the spawning success and the quality for the nursery habitat of these anadromous fish can adversely affect the EFH for juvenile bluefish, windowpane and summer flounder by reducing the availability of prey items.

Alewife and blueback herring spend most of their adult life at sea, but return to freshwater areas to spawn in the spring. Both species are believed to be repeat spawners, generally returning to their natal rivers (Collette and Klein-MacPhee 2002). Increases in turbidity due to the resuspension of sediments into the water column during construction can degrade water quality, lower dissolved oxygen levels, and potentially release chemical contaminants bound to the fine-grained estuarine/marine sediments. Suspended sediment can also mask pheromones used by migratory fishes to reach their spawning grounds and impede their migration and can smother immobile benthic organisms and demersal newly-settle juvenile fish (Auld and Schubel 1978; Breitburg 1988; Newcombe and MacDonald 1991; Burton 1993; Nelson and Wheeler 1997).

Noise from the construction activities may also result in adverse effects. Our concerns about noise effects comes from an increased awareness that high-intensity sounds have the potential to harm both terrestrial and aquatic vertebrates (Fletcher and Busnel 1978; Kryter 1984; Richardson et al. 1995; Popper 2003; Popper et al. 2004). Effects may include (a) non-life threatening damage to body tissues, (b) physiological effects including changes in stress hormones or hearing capabilities, or (c) changes in behavior (Popper et al. 2004).

In order to minimize the adverse effects of suspended sediment and sound on migrating anadromous fish, we recommend in-water work including dredging and pile driving be avoided from March 1 to June 30 during the upstream migration to their spawning grounds.

The use of seasonal in-water work limitations discussed above can minimize some of the adverse effects to EFH and other NOAA resources but it does not address our concerns regarding the impacts of more than 100 acres of wetland fill. Estuarine wetlands provide nursery and forage habitat for a variety of species of concern to NMFS including alewife, Atlantic croaker, Atlantic menhaden, spot, striped bass, as well as federally managed bluefish and summer flounder (Graff and Middleton undated). Important forage species such as mummichog (*Fundulus heteroclitus*), Atlantic silverside (*Menidia menidia*), inland silverside (*Menidia beryllina*), striped killifish (*Fundulus majalis*) and bay anchovy also use these areas. Mummichog, killifish, anchovies and other small fish and benthic organisms found in estuarine wetlands provide a valuable food source for many of the commercially and recreationally valuable species mentioned above including striped bass, summer flounder, weakfish, red hake (*Urophycis chuss*), scup (*Stenotomus chrysops*) and windowpane (Steimle et al. 2000).

Wetlands also provide many other important ecological functions and services to society including fish and wildlife habitat, food chain support, surface water retention or detention, groundwater recharge, and nutrient transformation, sediment retention and atmospheric equilibrium. The primary production in wetlands forms the base of the food web that supports insects and forage fish that are then prey species for larger fish such as bluefish, summer flounder and other species that have been documented in the marsh creeks surrounding the

project site. The water quality services provided by these wetlands retain nutrients, sediments and contaminants and improve water quality. Wetlands may also help to moderate global climate change through carbon storage within the plant communities and soil. The loss of wetlands as a result of this project can adversely affect resources of concern to NMFS species through the reduction in prey species and primary production, as well as water quality degradation from the reduction in sediment retention and pollution filtration.

As discussed above, the CWA Guidelines require avoidance, then minimization of impacts to the aquatic environment. Compensatory mitigation is also required for all unavoidable impacts. Due to the nature of the Early Site Permit process, on-site avoidance and minimization has not been demonstrated. Once a site design is selected, PSEG should demonstrate that the design selected avoids and minimizes adverse impacts to the aquatic environment, including minimizing wetlands fill. A compensatory mitigation plan should be developed in accordance with the 2008 Federal Mitigation Regulations to offset any unavoidable adverse effects. We understand that some of the potential mitigation sites may be State-owned Wildlife Management Areas. Conducting compensatory mitigation on State-owned land may not be permitted by the New Jersey Department of Environmental Protection. In addition, since these areas are primarily wetlands already, sufficient information must be presented to demonstrate that the ecological enhancements proposed on the mitigation site will offset the functions and values at the project site.

Section 305 (b)(2) of the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires all federal agencies to consult with NMFS on any action authorized, funded, or undertaken by that agency that may adversely affect EFH. Included in this consultation process is the preparation of a complete and appropriate EFH assessment to provide necessary information on which to consult. Our EFH regulation at 50 CFR 600.905 mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure. Unfortunately, the provided EFH assessment is not sufficient to fully assess potential impacts to EFH as required pursuant to 50 CFR 600.920. Specifically, the EFH assessment does not evaluate impacts to juvenile bluefish and its EFH, or the effects of more than 100 acres of wetland losses on EFH, federally managed species and their prey. We seek to extend the comment period pursuant to 50 CFR 600.920(i)(5) so that you may provide us with better information for the development of EFH Conservation Recommendations. Once we receive the information outlined above, we will initiate consultation and provide EFH conservation recommendations, as necessary.

### **Endangered Species Act**

Appendix F of the DEIS contains your Biological Assessment (BA). As noted in an August 19, 2014 letter, you have requested our concurrence with your determination that the proposed action may affect, but is not likely to adversely affect, listed sea turtles or sturgeon. Consultation is required when an action "may affect" listed species and/or critical habitat. Consultation may be concluded informally if the action "may affect, but is not likely to adversely affect" listed species and/or critical habitat. A "not likely to adversely affect" conclusion is appropriate when effects are wholly beneficial, insignificant or discountable. As explained in the joint U.S. Fish and Wildlife and NMFS Section 7 Handbook, "beneficial effects are contemporaneous positive

effects without any adverse effects. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.” We require additional information before we can initiate section 7 consultation. The additional information and analysis that is necessary is outlined below. We are happy to meet with you in person or via conference call to discuss these issues.

#### *Proposed Action*

The proposed action has not been clearly defined. It remains unclear what activities would be authorized under the ESP and which activities you consider to be interrelated and interdependent. For example, while you state on page 1 that the ESP does not authorize the construction and operation of a nuclear power plant, on pages 29-31, you present an analysis of effects of cooling water intake system operations. The BA should be revised to clearly state the proposed action and identify the direct and indirect effects as well as the effects of any interrelated or interdependent activities. Further, because no decision has been made as to the specific facility that will be built, it is unclear what scenario you are basing your assessment on. The BA should identify the full range of construction and operation options and clearly identify the impacts associated with each option. If you intend the BA to represent a “worst case” scenario, this should be noted in the BA. The BA should also be clear as to whether the discussion of cumulative effects is based on the ESA definition of cumulative effects or the NEPA definition of the term. It would also be helpful for the NRC to explain any subsequent consultation that may be necessary if PSEG applies for a construction permit, operations license or combined construction permit and operating license.

The BA provides no indication of the likely timing of any of the activities considered. It is our understanding that PSEG would have up to 20 years from the time the ESP is issued to apply for a construction permit and operations license. This long timeline introduces significant uncertainty in predicting effects of the proposed action that must be addressed in the BA. The BA should provide your best estimate of the timing of the activities considered.

#### *Dredging and In-Water Installation Activities*

The BA indicates that dredging and pile driving will be carried out in relation to the barge slip, barge storage and unloading facility, the intake and discharge structures and the causeway structures. You conclude that these activities will have no effects to listed species because “turtles and sturgeon would avoid any noise or disturbances.” You have not provided any analysis to support this conclusion. No information is provided on the type of dredge to be used. Sturgeon and sea turtles can be killed by hopper dredges; sturgeon are also vulnerable to entrainment in cutterhead dredges and capture in bucket/clamshell dredges. Additionally, the turbidity associated with dredging can affect listed species and their prey. Dredging and other benthic disturbances can also result in the reduction in available prey. The BA must be revised to describe: the type of dredge to be used; any time of year restrictions or other mitigation measures (e.g., silt curtains) to be deployed; the likelihood of interactions between the dredge and listed species; expected characteristics and duration of the turbidity plume; and, impacts of dredging on prey species. Pile driving can negatively impact aquatic life by resulting in

increased underwater noise. No information is provided on the number or type of piles to be installed. In order to assess the effects of pile driving on sea turtles and sturgeon, you must provide an estimate of the expected underwater noise and the expected duration of pile installation.

#### *Barge Traffic*

The discussion of barge traffic does not address the potential for project related vessels to strike sturgeon or sea turtles. The BA must include this assessment. Important information to consider includes the speed of the vessels, their size, and the draft of the vessels compared to water depths in the areas where they will be operating.

#### *Impingement and Entrainment*

You state that the new plant “would not be expected to impinge listed turtle or sturgeon species.” However, as stated elsewhere in the BA, while the new facility would employ closed-cycle cooling, “details about the screen design, screen wash, and fish return system for a new plant are not available.” Without any information on the likely size of any screen mesh or trash bar spacing, any conclusions regarding the likelihood of impingement or entrainment seem premature. You state that any “turtle or sturgeon standings on the PSEG Site intake trash bars are unlikely and would be limited to moribund or compromised individuals.” It is unclear what information you have used to determine that impingement is unlikely to occur. Further, as noted in Biological Opinions we have issued to you for other nuclear energy facilities, including Salem, interactions at the trash bars, regardless of whether the animal is dead or dying, constitute “capture” or “collect” in the definition of “take.”

#### *Discharge Impacts*

The analysis of effects of the discharge is incomplete. It contains no assessment of the effects of increased water temperatures on sea turtles or sturgeon, other than to state that foraging behavior will not be affected due to the buoyancy of the thermal plume. It is our understanding that the entirety of the thermal plume will not be limited to surface waters. A more thorough analysis of effects of the thermal plume on sea turtles and sturgeon, their habitats and prey, must be provided. You should also consider any predicted changes in ambient water temperature in the action area due to climate change. This is particularly important given that PSEG may not even apply for a construction and operations license until 20 years after the ESP is issued. You state that turtles and sturgeon may avoid the area that experiences high velocity and turbulence; there is no analysis of the effects of this avoidance. Further, while you mention a chemical discharge, there is no indication of which chemicals may be discharged and no analysis of the effects of that discharge.

We also note that Section 5.3 should be updated to reflect the conclusions of our July 2014 Biological Opinion on the effects of the continued operation of the Salem and Hope Creek Nuclear Generating Stations.

#### **Conclusions**

We look forward to continuing to work with the NRC, USACE and PSEG as this project moves forward. Should you have any questions or wish to discuss this matter further, please contact Karen Greene in our Habitat Conservation Division ((732)872-3023 or [karen.greene@noaa.gov](mailto:karen.greene@noaa.gov)).

Questions specific to the Endangered Species Act or the Section 7 consultation should be directed to Julie Crocker in our Protected Resources Division ([Julie.Crocker@noaa.gov](mailto:Julie.Crocker@noaa.gov) or (978)282-8480).

Sincerely,

A handwritten signature in black ink, appearing to read 'L.A.C.', with a long horizontal flourish extending to the right.

Louis A. Chiarella  
Assistant Regional Administrator  
for Habitat Conservation

cc: US Army Corps – F. Cianfrani  
FWS- Pleasantville, E. Schradling  
EPA- Region II, D. Montella  
NJDEP Office of Dredging – S. Dietrick  
NOAA PPI  
Crocker, F/NER3

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