

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 52-043-ESP
PSEG POWER, LLC AND PSEG	)	
NUCLEAR, LLC	)	ASLBP No. 15-943-01-ESP-BC01
	)	
(Early Site Permit Application)	)	February 25, 2016

NRC STAFF TESTIMONY RELATED TO FEBRUARY 8, 2016 ORDER  
TOPIC 5: ADDITIONAL DISCUSSION OF BUILDING AND OPERATING IMPACTS TO  
BOG TURTLES AND EASTERN TIGER SALAMANDERS

**Q1: Please state your name, occupation, employer, and professional qualifications.**

**A1:** (MW) My name is Michael Willingham. I am a Project Manager in Hydrology and Meteorology Branch 2, in the Division of Site Safety and Environmental Reviews, in the Office of New Reactors (NRO), U.S. Nuclear Regulatory Commission (NRC). I am the technical reviewer for terrestrial ecology and land use for the environmental review associated with the application submitted May 25, 2010, by PSEG Power, LLC and PSEG Nuclear, LLC (together, PSEG or Applicant) for an Early Site Permit (ESP) at the PSEG Site in Salem County, New Jersey. A statement of my professional qualifications is included in Exhibit (Ex.) NRC002.

(NG) My name is Neil Giffen. I am employed as a Natural Resources Manager of the Facilities and Operations Directorate at the Oak Ridge National Laboratory (ORNL), in Oak Ridge, Tennessee. I am employed by UT-Battelle, LLC (UT-Battelle), a not-for-profit, limited liability partnership between the University of Tennessee and Battelle Memorial Institute, which was established for the sole purpose of managing and operating the ORNL facilities for the U.S. Department of Energy.

As part of my official responsibilities, I assisted the NRC Staff in its environmental review associated with the application submitted May 25, 2010, by PSEG for an ESP at the PSEG Site. My assistance to the NRC Staff was specifically in the areas of terrestrial and wetlands ecology. A statement of my professional qualifications is included in Ex. NRC002.

**Q2: Please describe your responsibilities with regard to the Staff's review of the PSEG Site Early Site Permit (ESP) application.**

**A2:** (MW) As the reviewer for terrestrial ecology and land use assigned to the PSEG ESP environmental review, I was responsible for preparing the terrestrial and wetlands ecology portions of Sections 2.4, 4.3, 5.3, 7.3, and 9.3 of the Final Environmental Impact Statement (FEIS) (Ex. NRC004A and NRC004B).

(NG) In my assignment to the PSEG ESP environmental review, I was responsible for assisting the NRC Staff in preparing the terrestrial and wetlands ecology portions of Sections 2.4, 4.3, 5.3, 7.3, and 9.3 of the FEIS (Ex. NRC004A and NRC004B).

**Q3: What is the purpose of your testimony?**

**A3:** (MW, NG) The purpose of our testimony is to explain the staff's actions in reviewing information and conducting site visits in preparation of the FEIS for the PSEG ESP application regarding the presence of the bog turtle and the eastern tiger salamander in the areas proposed for a new causeway, transmission lines, or related infrastructure.

**Q4: Please describe the sources that the staff used as information to support its analysis in the FEIS and its conclusion that neither the bog turtle nor the eastern tiger salamander were identified in the areas proposed for a new causeway, transmission lines, or related infrastructure.**

**A4:** (MW, NG) Sources of information referenced in the FEIS (Ex. NRC004A and NRC004B) from which the staff gathered information in its analysis to indicate past and present existence of the bog turtle and the eastern tiger salamander included:

- CWFNJ (Conserve Wildlife Foundation of New Jersey). 2012. "New Jersey Endangered and Threatened Species Field Guide: Eastern Tiger Salamander (*Ambystoma tigrinum tigrinum*).\" Trenton, New Jersey. Available at <http://www.conservewildlifenj.org/species/fieldguide/view/Ambystoma%20tigrinum%20tigrinum/>.
- CWFNJ (Conserve Wildlife Foundation of New Jersey). 2014. "New Jersey Endangered and Threatened Species Field Guide: Bog Turtle (*Glyptemys muhlenbergii*).\" Trenton, New Jersey. Available at <http://www.conservewildlifenj.org/species/fieldguide/view/Glyptemys%20muhlenbergii/>.
- NJDEP (New Jersey Department of Environmental Protection). 2014. "New Jersey Bog Turtle Project.\" Division of Fish and Wildlife, Trenton, New Jersey. Available at <http://www.state.nj.us/dep/fgw/bogturt.htm>.; and
- PSEG (PSEG Power, LLC). 2015. PSEG Site Early Site Permit Application; Part 3, "Environmental Report.\" Revision 4, Newark, New Jersey. (ADAMS Accession No. ML15169A960) (citing Ichthyological Associates, Inc. 1980. The Terrestrial Ecology of Artificial Island and Vicinity 1972-1978: A Summary. (ADAMS Accession No. ML13309A649)).

**Q5: Please describe the information on which the staff relied in determining that neither the bog turtle nor the eastern tiger salamander were identified in the areas proposed for a new causeway, transmission lines, or related infrastructure.**

**A5:** (MW, NG) On page 23 of the Ichthyological Associates, Inc. (1980) report of the terrestrial ecology of Artificial Island, the study states, "The rarely observed bog turtle, *Clemmys muhlenbergi*, was found in the present study in Delaware by Arndt (1977) who reported on its natural history.\" Additionally, Appendix Table 3 on page 78 of the same study reports the bog turtle as "Rare, found in a bog in the Delaware portion of the study area, recorded from Salem County, New Jersey by Grant (1966).\" On page 22 of the Ichthyological Associates, Inc. (1980) report of the terrestrial ecology of Artificial Island, the study states, " The eastern tiger salamander, *Ambystoma t. tigrinum*, was found in southern New Castle County, Delaware, just outside the study area and may occur within it.\" Additionally, Appendix Table 2 on page 77 of the same study reports about the eastern tiger salamander, "We recorded it rarely just out of the

study area, near the southwestern corner of New Castle County, Delaware, and it may occur in the Delaware portion of the study area. In New Jersey, it has been recorded for Salem County by Grant (1966)".

Table 2.4.1 in Section 2.4, pg. 2.4-83, of PSEG ESP Application, Part 3, Environmental Report (2015) provides a list of surveys, survey locations, and habitat types observed within the PSEG Site and Vicinity (Ex. PSEG004S). Figure 2.4-4 shows the locations where the transects and observations were made (Ex. PSEG004W). The surveys included the proposed causeway, proposed transmission lines, and related infrastructure (Ex. PSEG004S). In Table 2.4-5 in Section 2.4, pg. 2.4-89, of PSEG ESP Application, Part 3, Environmental Report (2015), the applicant provided a list of reptiles and amphibians observed on-site and in the vicinity of the PSEG Site (Ex. PSEG004S). The table reflects that the bog turtle was not observed during the 2009-2010 survey (Ex. PSEG004S). However, it noted that the bog turtle had been observed in a prior survey and referenced the Ichthyological Associates Report from 1980 (Ex. PSEG004S). Table 2.4.1 also reflects that the eastern tiger salamander was not observed during the 2009-2010 survey (Ex. PSEG004S). However, it noted that the eastern tiger salamander had been observed in a prior survey and referenced the Ichthyological Associates Report from 1980 (Ex. PSEG004S).

Both CWFNJ (2014) and NJDEP (2014) reported that the preferred habitat of the bog turtle consist of fens, bogs, and wet meadows. Additionally, both reported that plant communities associated with bog turtle habitats consist of varying compositions of low-growing grasses, sedges, rushes, mosses, ferns, scattered cattails, and myriad ephemeral and perennial forbs. Also, bog turtle habitat consist of low shrub and tree cover, and spring-derived rivulets, shallow, mucky pools, and abundant hummocks. Both reported that bog turtles are primarily restricted to several counties in New Jersey including northeastern portions of Salem County.

CWFNJ (2012) reported that the eastern tiger salamander requires both wetland and upland habitats for its life-cycle. These habitats can consist of old fields, deciduous or mixed woodlands, and ponds. Additionally, CWFNJ (2012) reported that the eastern tiger salamander's range is limited to the far eastern portions of Salem County and Cumberland and Atlantic Counties, New Jersey.

**Q6: How did the Staff confirm that neither the bog turtle nor the eastern tiger salamander were identified in the areas proposed for a new causeway, transmission lines, or related infrastructure?**

**A6:** (MW, NG) The staff reviewed the above stated references and the information provided within them to confirm that the bog turtle and the eastern tiger salamander were not observed in the areas of the proposed new causeway, transmission lines, or related infrastructure. Additionally, the staff conducted several site visits to PSEG Site and vicinity and confirmed that the habitat observed was consistent with the habitat information reported in the PSEG ER (2015), which did not indicate the presence of the preferred habitat for either species. Bog turtles and eastern tiger salamanders were not observed during those visits.

For the reasons stated above, the staff determined that the available information about the bog turtle and the eastern tiger salamander and their habitats supported a conclusion that building and operating a new nuclear power plant, potential new causeway, transmission lines, or related infrastructure at the PSEG Site would not be expected to impact the bog turtle or eastern tiger salamander (FEIS Chapter 4, pg. 4-33 and Chapter 5, pg. 5-24) (Ex. NRC004A).

**Q7: Does this conclude your testimony?**

**A7:** (MW, NG) Yes.

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	)	
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AFFIDAVIT OF MICHAEL WILLINGHAM

I, Michael Willingham, do hereby declare under penalty of perjury that my statements in the foregoing testimony and my statement of professional qualifications (Ex. NRC002) are true and correct to the best of my knowledge and belief. I attest to the accuracy of my testimony and endorse its inclusion into the record of this proceeding.

**Executed in Accord with 10 CFR § 2.304(d)**

Michael Willingham  
Project Manager  
Division of Site Safety and Environmental Analysis  
Office of New Reactors  
U.S. Nuclear Regulatory Commission  
Mail Stop T7-F3  
Washington, DC 20555-0001  
(301) 415-3924  
Michael.Willingham@nrc.gov

Executed at Rockville, Maryland  
This 25th day of February, 2016

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AFFIDAVIT OF NEIL GIFFEN

I, Neil Giffen, do hereby declare under penalty of perjury that my statements in the foregoing testimony and my statement of professional qualifications (Ex. NRC002) are true and correct to the best of my knowledge and belief. I attest to the accuracy of my testimony and endorse its inclusion into the record of this proceeding.

**Executed in Accord with 10 CFR § 2.304(d)**

Neil Giffen  
Natural Resources Manager  
Facilities and Operations Directorate  
Oak Ridge National Laboratory  
Oak Ridge, TN 37831-6351  
(865) 241-9421  
Giffennr1@ornl.gov

Executed at Oak Ridge, Tennessee  
This 25th day of February, 2016