

March 5, 2014

Mr. James Mallon  
Early Site Permit Manager  
PSEG Power, LLC  
244 Chestnut Street  
Salem, NJ 08079

SUBJECT: PSEG SITE EARLY SITE PERMIT APPLICATION HYDROLOGY REVIEW

Dear Mr. Mallon:

On August 4, 2010, the U.S. Nuclear Regulatory Commission (NRC) docketed (Agencywide Documents Access and Management System (ADAMS) Accession No. ML102010714) the PSEG Site Early Site Permit (ESP) application, submitted by PSEG Power, LLC, and PSEG Nuclear, LLC (PSEG). On September 12, 2013, the NRC staff issued the current schedule (ADAMS Accession No. ML12361A136) reflecting the new safety and environmental review milestones.

This is to inform you that the current safety review public milestones will not be met due to reasons explained below.

On October 29, 2012, the staff issued Request for Additional Information (RAI) No. 67 related to "Probable Maximum Surge, Seiche, & Flooding." PSEG responded to this RAI on November 27, 2013. The staff commends PSEG for application of probabilistic techniques to potential flooding hazard analysis. During the initial review of your response to RAI 67, the staff conducted a public telephone conference with PSEG on January 8, 2014, to clarify an apparent inconsistency in the low water level description in SSAR Subsections 2.4.5 and 2.4.11. PSEG committed to address the staff concerns by modifying these two SSAR Subsections. At this meeting, the staff also asked a series of questions regarding PSEG's use of the Joint Probability Method (JPM) for the storm surge analysis for the PSEG Site, which is the first application of the methodology for siting a new U.S. nuclear power plant. Further, the staff asked questions regarding models and parameters as well as interpretation of the applicant's results in light of the use of both deterministic and probabilistic models, treatment of epistemic and aleatory uncertainty in the probabilistic models, and the basis and implication of the selected discretization scheme for the JPM-OS (Optimum Sampling) integration. Lastly, during this public teleconference, the staff discussed the need for a regulatory audit in order to gain an in-depth understanding of the new methodology, modeling assumptions, and results of the probabilistic storm surge analysis before making safety conclusions concerning the characteristics and assessment of storm surge flooding at the PSEG site.

On February 4 - 6, 2014, the staff conducted a regulatory audit involving SSAR Section 2.4, "Hydrology," of the ESP application. During the audit, the staff identified several areas where further information or documentation is needed for the staff to complete its review of this new, first application, of probabilistic storm surge. These include: (1) the markup of SSAR Subsection 2.4.5 as submitted with the November 27, 2013, response to RAI 67; (2) documentation of supporting models and associated modeling assumptions; and (3) calculation packages. The staff discussed its significant findings with PSEG staff at the public exit meeting immediately following the audit. The findings include, but are not limited to, the following:

1. documentation of the overall Joint Probability Method and assumptions (e.g., bases for parameter selections and sensitivity studies performed) in the SSAR is not commensurate with the unique and novel nature of the use of the methodology for defining the design basis for a nuclear power plant;
2. documentation of relevant reports, calculation packages, and computer subroutines used to support the methodology was not complete.

In addition, the staff identified several modeling decisions and assumptions relative to the probabilistic storm surge analysis that will require additional information and substantial staff review. Details regarding the staff's findings will be issued in an audit report to follow.

Resolution of the aforementioned issues involves the staff accomplishing some key tasks, such as, performing confirmatory analyses, reviewing a large number of documents, developing and issuing RAIs, reviewing PSEG responses to those RAIs, and ultimately formalizing the staff's findings in a safety evaluation. Accomplishing these tasks will require significant staff time and resources well in excess of what was originally envisioned for the SSAR review prior to submission of the PSEG response to RAI 67 in November 2013. The most expeditious resolution of the flooding issues would involve use of well-recognized and approved methodologies (e.g., Regulatory Guide 1.59 with two-dimensional analysis). The staff recognizes that the PSEG-proposed probabilistic approach may represent an improvement in the state-of-the art and may be more widely applicable. However, approval of this approach will require more time and technical activity by both PSEG and the NRC staff. In light of the above, the staff is presently unable to issue a revised review schedule to complete its safety evaluation of the "Hydrology" portions of the PSEG Site ESP application. The staff will finalize its review schedule after the additional requests for information are provided to PSEG and PSEG provides a schedule for responding to these requests.

J. Mallon

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If you have any questions or require additional information, please contact Mr. Prosanta Chowdhury, the Lead Project Manager, at 301-415-1647 or by email at [Prosanta.Chowdhury@nrc.gov](mailto:Prosanta.Chowdhury@nrc.gov).

Sincerely,

*/RA/*

Frank Akstulewicz, Director  
Division of New Reactor Licensing  
Office of New Reactors

Docket No.: 52-043

cc: See next page

J. Mallon

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If you have any questions or require additional information, please contact Mr. Prosanta Chowdhury, the Lead Project Manager, at 301-415-1647 or by email at [Prosanta.Chowdhury@nrc.gov](mailto:Prosanta.Chowdhury@nrc.gov).

Sincerely,

*/RA/*

Frank Akstulewicz, Director  
Division of New Reactor Licensing  
Office of New Reactors

Docket No.: 52-043

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