Nuclear Development
244 Chestnut Street, Salem, NJ 08079

PSEG
Power LLC

ND-2014-0013
April 30, 2014

Mr. Glenn Tracy, Director
Office of New Reactors
U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: **Request for Temporary Exemption Regarding the PSEG Early Site Permit Application (Docket 52-043) Analysis of Probable Maximum Surge Flooding**

Dear Mr. Tracy:

PSEG Power, LLC and PSEG Nuclear, LLC (PSEG) are requesting a temporary exemption from the storm surge flood analysis required by 10 CFR 52.17(a)(1)(vi) for the PSEG Site Early Site Permit (ESP) application (ESPA). As explained in more detail below, this temporary exemption would minimize unnecessary schedule delays and effort due to evolving regulatory guidance for the analysis and would permit the use of experience from the review of similar analyses for operating plants as part of the NRC's post-Fukushima activities. PSEG will commit, concurrent with the exemption, to completing the full storm surge flood analysis as part of a Combined License (COL) application that references this ESP. This exemption meets all requirements set forth in 10 CFR 52.7 and 10 CFR 50.12 and will allow the NRC and PSEG to focus our efforts on timely completion of the ESPA without compromising the adequacy of the technical review.

PSEG submitted an application for an ESP for the PSEG Site on May 25, 2010, and the NRC docketed that application on August 4, 2010. As part of the PSEG ESPA, in accordance with 10 CFR 52.17(a)(1)(vi), PSEG performed an analysis of the Probable Maximum Surge and Seiche Flooding expected at the PSEG Site. In performing the analysis for the probable maximum surge and seiche flooding, PSEG followed the NRC guidance in effect at the time of the development of the ESPA.

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Subsequent to PSEG's ESPA submittal, new analysis methodologies became available, and the NRC guidance for performing storm surge analyses was revised. In response to NRC Request for Additional Information No. 67, Probable Maximum Surge and Seiche Flooding, Application Section: 2.4.5, issued on October 29, 2012, PSEG re-analyzed the storm surge flooding hazard using the revised NRC guidance. PSEG submitted the revised storm surge analysis for the PSEG Site to the NRC on November 27, 2013. On March 5, 2014, NRC transmitted a letter to PSEG stating, in part:

> *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.*

Enclosure 1 to this letter provides PSEG's formal request for a temporary exemption from 10 CFR 52.17(a)(1)(vi), to the extent necessary to authorize deferral of the final determination of the probable maximum storm surge flooding hazard for the PSEG Site to the COL phase. The enclosure provides the information identified by § 50.12, including the relevant special circumstances identified in § 50.12(a)(2).

The PSEG Site ESPA has been in NRC review for over forty months. The Advanced Safety Evaluation Reports for all Site Safety Analysis Report (SSAR) Sections, except SSAR Sections 2.4 and 2.5 have been issued. Deferral of the final resolution of the probable maximum storm surge flooding hazard to the COL phase will enable the NRC review of the PSEG Site ESPA to be completed in a manner which avoids the likelihood of further schedule jeopardy, and most importantly, without adversely affecting the NRC staff's ability to make a final safety conclusion on the remaining aspects of the PSEG Site ESP application. The exemption also raises no safety concerns because PSEG would undertake no licensed construction activities until after it obtains a future COL after completing the storm surge flood analysis.

The Joint Probability Method with Optimal Sampling (JPM-OS) method described in the RAI No. 67 response represents the current state-of-the-art for flood analysis. This same methodology has been used by other operating reactor licensees to perform the flood reanalysis directed in the March 12, 2012 letter "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights From the Fukushima Dai-ichi Accident". The NRC's assessment of the required time to review this new method would extend ESP approval unnecessarily. The exemption would have the significant benefit of improving efficiency and would enable the staff to use lessons learned from the NRC's consideration of the post-Fukushima flood reanalyses, including the analysis for the Salem and Hope Creek Site when reviewing the flood analysis at the COL phase.

In order to minimize the impact on NRC and PSEG resources involved in continuing the analysis and review of the probable maximum storm surge flooding hazard, PSEG requests that the NRC make a determination on this request as soon as practicable.

Upon receipt of the approved exemption, PSEG would revise SSAR Subsection 2.4.5 to clarify that the JPM-OS analysis was performed as a confirmatory analysis to verify that the total water surface elevation level (WSEL) of 35.9 ft. NAVD determined by the original one-dimensional analysis is in fact conservative. PSEG is including the description of both storm models in the SSAR as a measure to document the analyses that have been performed, but does not expect the NRC staff to make a safety determination regarding the storm surge analysis based on the information contained in SSAR Subsection 2.4.5. The NRC safety determination for storm surge will be deferred until PSEG selects a technology and submits an application for a COL.

It is possible that some changes in the total WSEL could occur as a result of the NRC staff's review at the COL stage. However, any changes from PSEG's existing analyses could be accommodated through mitigation measures, if necessary. Therefore, the deferral of the staff's review does not call into question the suitability of the site for purposes of issuance of an ESP (subject to an appropriate license condition or other commitment for completion of the staff's review at the COL stage), particularly for a site with existing operating units.

There are no commitments in this letter.

If there are any questions regarding this matter, please contact me at (856) 339-7908, or David Robillard, PSEG Nuclear Development Licensing Engineer at (856) 339-7914.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 30th day of April, 2014.

Sincerely,

James Mallon
Early Site Permit Manager
Nuclear Development
PSEG Power, LLC

Enclosure 1: Request for Exemption for Analysis of Probable Maximum Surge Flooding Hazard

cc: G. Holahan. Deputy Director, Office of New Reactors
F. Akstulewicz, Director, Division of New Reactor Licensing
M. Delligatti, Deputy Director, Division of New Reactor Licensing
S. Flanders, Director, Division of Site Safety and Environmental Analysis

PSEG Letter ND-2014-0013, dated April 30, 2014

Enclosure 1

Request for Exemption for Analysis of Probable Maximum Surge Flooding Hazard

I. Introduction

PSEG Power, LLC and PSEG Nuclear, LLC (PSEG) submitted an application for an Early Site Permit (ESP) for the PSEG Site on May 25, 2010, and the NRC docketed that application on August 4, 2010. As part of the PSEG ESP application (ESPA), in accordance with 10 CFR 52.17(a)(1)(vi), PSEG performed an analysis of the probable maximum surge and seiche flooding expected at the PSEG Site. In performing the analysis for the probable maximum surge and seiche flooding, PSEG followed the NRC guidance in effect at the time of the development of the ESPA.

Subsequent to PSEG's ESPA submittal, new analysis methodologies became available, and the NRC guidance for performing flood analyses was revised. In response to NRC Request for Additional Information No. 67, Probable Maximum Surge and Seiche Flooding, Application Section: 2.4.5, issued on October 29, 2012, PSEG reanalyzed the probable maximum storm surge flooding hazard using the revised NRC guidance. PSEG submitted the revised storm surge analysis for the PSEG Site to the NRC on November 27, 2013. On March 5, 2014, NRC transmitted a letter to PSEG stating, in part:

> *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.*

II. Requested Exemption

Pursuant to 10 CFR 52.7 and 10 CFR 50.12, PSEG requests a temporary exemption from 10 CFR 52.17(a)(1)(vi), to the extent necessary to authorize the deferral of the performance of the final analysis for the maximum probable storm surge flooding hazard at the PSEG Site until such time that PSEG submits a Combined License (COL) application. As discussed more fully below, PSEG is seeking relief from having the NRC review the storm surge flooding hazard at the ESPA stage, subject to appropriate license conditions or other commitments which would compel such review at the COL stage. Further, PSEG would docket or retain docketed certain information developed related to our efforts to evaluate the maximum probable storm surge albeit for reference only purposes.

PSEG has made a good faith effort to adequately and accurately describe the flooding hazard from storm surge at the PSEG Site. However, due to the relative newness of the use of the Joint Probability Method with Optimal Sampling (JPM-OS) method of determining the storm surge hazard in required NRC analyses, the NRC will need additional time to complete their review. The requested exemption

provides only temporary relief from the applicable regulation. The temporary relief would be remedied when PSEG submits a COL application for the PSEG Site with a state-of-the-art storm surge analysis. The exemption has other benefits as well, including consideration of experience from the review of similar analyses for operating plants as part of the NRC's post-Fukushima activities.

III. Regulatory Requirements for Exemptions under Part 50 and Part 52

The applicable exemption provisions are found at 10 CFR 52.7 and 10 CFR 50.12. Section 52.7 permits the NRC to grant exemptions from Part 52 if the criteria of Section 50.12 are met. Section 50.12, in turn, provides for the granting of exemptions that are "[a]uthorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security." In addition to satisfying these criteria, Section 50.12 requires that an applicant for an exemption demonstrate that at least one "special circumstance" is present, as outlined at 50.12(a)(2). All of the criteria justifying an exemption are present, as demonstrated below.

IV. Background

As noted above, PSEG submitted an ESPA for the PSEG Site on May 25, 2010 and the NRC docketed that application on August 4, 2010. As part of the PSEG ESPA, in accordance with 10 CFR 52.17(a)(1)(vi), PSEG performed an analysis of the probable maximum surge and seiche flooding expected at the PSEG Site. PSEG's analysis of the probable maximum surge and seiche flooding was conducted in accordance with the guidance provided in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants", American National Standards Institute/American Nuclear Society (ANSI/ANS)-2.8-1992, "Determining Design Basis Flooding at Power Reactor Sites," and Regulatory Guide (RG) 1.59, Revision 2 – 1978, "Design Basis Floods for Nuclear Power Plants".

The NRC staff conducted their first Hydrology audit of the PSEG ESPA from February 15 - 16, 2011; seven months after the ESPA had been accepted by the NRC. The first RAI regarding Probable Maximum Surge and Seiche Flooding, RAI No. 39, was issued on October 27, 2011, 8 months after the Hydrology audit, and 15 months after the acceptance review was completed. PSEG submitted an initial response to RAI No. 39 on November 22, 2011, with a final response submitted on December 9, 2011. In November 2011, the NRC released NUREG/CR-7046, "Design-Basis Flood Estimation for Site Characterization at Nuclear Power Plants in the United States of America", which required flood analysis to be performed using a two-dimensional model. PSEG received no further questions from the staff on the RAI No. 39 response until draft RAI No. 67 was transmitted to PSEG on September 28, 2012, fully 9 ½ months after PSEG had submitted its final response to RAI No. 39. PSEG had originally planned on responding to RAI No. 67, with justification to maintain the original ESPA flood analysis. However, with the publication of JLD-ISG-2012-06, "Draft Interim Staff Guidance for Performing a Tsunami, Surge, or

Seiche Hazard Assessment", for flood reanalysis for operating plants, on October 28, 2012, the NRC no longer considered the original approach to be valid for Fukushima flood analyses. PSEG also decided that the flood analyses for the ESP Site and the co-located operating units should be performed using the same methodology consistent with NRC staff guidance. Therefore, PSEG opted to perform the evaluation using the JPM-OS analysis method.

Given the specialized nature of the JPM-OS analysis, PSEG selected a contractor with experience using this method for the U.S. Army Corps of Engineers (USACE). The JPM, developed by the National Oceanic and Atmospheric Administration (NOAA), is widely used in coastal flood studies performed by the USACE and the Federal Emergency Management Agency (FEMA). The JPM-OS methodology was developed in the late 2000's by the USACE-led Interagency Performance Evaluation Taskforce (IPET) for critical post-Katrina determinations of hurricane surge frequencies. Additionally, the contractor selected to perform the JPM-OS flood analyses co-authored NUREG/CR-7134, "The Estimation of Very-Low Probability Hurricane Storm Surges for Design and Licensing of Nuclear Power Plants in Coastal Areas". NUREG/CR-7134 describes flood analysis methods that represent the significant advances that have been made in hurricane storm surge estimation since the last update to the relevant NRC guidance on design-basis flood estimation (Regulatory Guide 1.59, "Design Basis Floods for Nuclear Power Plants", Revision 2) in 1978.

As part of our response preparation, PSEG requested a series of public meetings with the NRC staff to discuss our storm surge reanalysis. During the first public meeting, held on July 1, 2013, PSEG described the proposed methodology to be used to perform the reanalysis (ML13183A106). The following NRC staff personnel were in attendance at the meeting: P. Chowdhury; K. Erwin; Dr. H. Jones; and J. Giacinto. On July 31, 2013, NRC staff issued the summary of the public meeting (ML13186A107), which states in part:

> *Following PSEG's formal presentation, the NRC staff asked clarifying questions on the organization and depth of the RAI response expected to be submitted by PSEG on or before October 31, 2013. PSEG provided satisfactory response to NRC staff inquiries. The NRC staff feels that PSEG's approach to, and scope and depth of the forthcoming response to RAI 67 is reasonable.*

On September 26, 2013, at a second public meeting, PSEG presented the preliminary results of the PSEG Site ESPA storm surge reanalysis including: the ADCIRC+SWAN Model Review; JPM-OS; and still water and total water surface elevation level (WSEL) results (ML13270A134). The following personnel

representing the NRC staff attended at the meeting: P. Chowdhury; C. Cook; M. Eudy; Dr. H. Jones; J. Giacinto; and C. Bender (Taylor Engineering). On December 4, 2013, NRC staff issued the summary of the public meeting (ML13311A483), which states in part:

> *Following PSEG's formal presentation, the NRC staff asked clarifying questions on various aspects of PSEG's methodology and results involving reanalysis of flooding hazard, which is expected to be submitted by PSEG on or before October 31, 2013. PSEG provided satisfactory response to NRC staff inquiries. The NRC staff finds PSEG's approach to, and scope and depth of the forthcoming response to RAI 67 reasonable.*

At no time during either of these public meetings did the NRC staff voice any concerns regarding the use of the JPM-OS methodology for a design basis analysis.

On February 4 – 6, 2014, NRC conducted a follow-up hydrology audit to gain further insights into the PSEG JPM-OS storm surge analysis. Audit participants representing the NRC include C. Bender, M. Bensi, K. Erwin, M. Eudy, J. Giacinto, Dr. H. Jones, M. Lee, K. Quinlan, and M. Takacs. On March 5, 2014, NRC transmitted a letter to PSEG discussing the results of the audit and stating, in part:

> *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.*

The NRC letter further states:

> *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.*

SSAR Section 2.4.5, along with the response to RAI No. 67, provides the description of the two analyses PSEG performed to determine the probable maximum storm surge flooding hazard at the PSEG Site. Both of these analyses were performed using analytical techniques identified as appropriate in the related NRC regulatory guidance. PSEG has made a good faith effort to adequately and accurately describe the flooding hazard from storm surge at the PSEG Site. However, due to the relative newness of the use of the JPM-OS method of determining the storm surge hazard in NRC required analyses, the NRC staff will require significant additional time to complete their review.

VI. Application of 10 CFR 50.12(a)

Section 50.12(a) states that the NRC may grant exemptions which are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security. In addition, the NRC will not consider granting an exemption unless special circumstances are present.

1. The exemption is authorized by law.

Issuance of the exemption is authorized by law because it will not conflict with any provision of the Atomic Energy Act, the National Environmental Policy Act (NEPA), or any other law. Neither the Act nor any other law prohibits the NRC from issuing the requested temporary exemption from 10 CFR 52.17(a)(1)(vi) under the present circumstances.

2. The exemption does not present an undue risk to the public health and safety.

As described above, the exemption will authorize deferral of the final probable maximum surge flooding analysis to the COL phase of the project. The exemption will affect only the timing of the final analysis and will not affect any NRC safety requirements that apply to the design, construction, and operation of any proposed new nuclear plant at the PSEG Site. As stated in SSAR Subsection 2.4.1.1, "Floor elevations for safety-related structures, systems and components (SSC) for the new plant, other than the intake structure, will be established to maintain one foot of clearance above the DBF, as required by Tier 1 of the design control document (DCD) for the technology selected."

Similarly, the exemption will not affect any NRC requirements that apply to the operation of Salem Generating Station (SGS) Units 1 & 2 or Hope Creek Generating Station (HCGS).

Issuance of an ESP for the PSEG Site does not allow PSEG to perform any construction activities, as defined in 10 CFR 50.10(a)(1), nor does it allow PSEG to build or operate a nuclear power generating unit.

Consequently, the exemption will not present an undue risk to the public health and safety.

3. The exemption is consistent with the common defense and security.

Because the exemption will only affect the timing of the final analysis for probable maximum surge flooding and will not authorize the possession of licensed material or affect any NRC security requirements that apply to the PSEG Site, HCGS, or the SGS units, the exemption is consistent with the common defense and security.

4. Special circumstances are present.

10 CFR 50.12(a)(2) states that special circumstances are present whenever any of six listed circumstances exist. The following listed circumstances apply here:

a. Section 50.12(a)(2)(ii) applies because application of the regulation to the PSEG Site ESPA analysis of probable maximum surge flooding is not necessary to achieve the underlying purpose of the rule.

The purpose of § 52.17(a)(1)(vi), in part, is to require the analysis of the hydrologic characteristics of the proposed site with appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area and with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated. The PSEG ESPA Site Safety Analysis Report (SSAR), Sections 2.4.1 through 2.4.4 and Sections 2.4.6 through 2.4.13 provide descriptions of the hydrologic characteristics of the proposed site. SSAR Section 2.4.5, along with the response to RAI No. 67, provides the description and results of two analyses PSEG performed to determine the probable maximum storm surge flooding hazard at the PSEG Site. Both of these analyses were performed using analytical techniques identified as appropriate in the applicable NRC regulatory guidance. PSEG has made a good faith effort to adequately and accurately describe the flooding hazard from storm surge at the PSEG Site. However, due to the relative newness of the use of the JPM-OS method of determining the surge hazard in NRC required analyses, NRC staff is unable to use the JPM-OS results as the basis for their safety determination at this time.

The NRC staff will complete the requisite review prior to issuance of the COL(s). It is possible that some changes in the total WSEL could occur as a result of the NRC staff's review at the COL stage. However, any changes from PSEG's existing analyses could be accommodated through mitigation measures, if necessary. As stated in SSAR Subsection 2.4.1.1, "Floor elevations for safety-related structures, systems and components (SSC) for the new plant, other than the intake structure, will be established to maintain one foot of clearance above the DBF, as required by Tier 1 of the design control document (DCD) for the technology selected." Therefore, the deferral of the staff's review does not call into question the suitability of the site for purposes of issuance of an ESP (subject to an appropriate license condition or other commitment for completion of the staff's review at the COL stage), particularly for a site with existing operating units. Accordingly, completion of the NRC staff's review of the analysis of probable maximum surge flooding is not necessary at this time to achieve the underlying purpose of the rule (i.e., to ensure that the site is suitable for reactors of a type encompassed within the plant parameter envelope).

For these reasons, PSEG's exemption request satisfies special circumstance (ii).

b. Section 50.12(a)(2)(iii) applies because compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.

As provided in 10 CFR 52.17(a)(1)(xii), it is expected that an ESP applicant will perform its evaluations against the "Standard Review Plan (SRP) revision in effect 6 months before the docket date of the application." More than 26 months after docketing of the PSEG ESPA, the NRC issued RAI No. 67 requesting that PSEG use more recent guidance than contained in the SRP. The associated NRC staff review of PSEG's RAI response will impose undue hardships on PSEG by causing a substantial delay in issuance of the ESP attributable to NRC's request for PSEG to use analytical methods not contained in the SRP as referenced in 10 CFR 52.17(a)(1)(xii). Furthermore, it will result in a significantly longer NRC review schedule than incurred by the other ESP applicants.

Accordingly, PSEG's exemption request satisfies special circumstance (iii).

b. Section 50.12(a)(2)(v) applies because the exemption would provide only temporary relief from the applicable regulation and PSEG has made good faith efforts to comply with the regulation. The temporary relief would be remedied when PSEG submits a COL application for the PSEG Site with a state-of-the-art storm surge analysis.

PSEG has demonstrated a good faith effort to perform the hydrologic analyses in support of its ESPA. PSEG's initial analysis of the probable maximum surge flooding hazard at the PSEG Site was performed in accordance with the guidance

provided in NUREG-0800, RG 1.59 and ANS-2.8-1992. The meteorological parameters of the probable maximum hurricane used in assessing the hazard were developed in accordance with the guidance in National Weather Service (NWS) Technical Report 23, as directed by NUREG-0800. The total WSEL at the PSEG Site, including hurricane surge, wave run-up and potential sea level rise was determined to be 35.9 ft. NAVD.

On October 27, 2011, NRC staff issued RAI No. 39, which requested PSEG to provide additional information related to the storm surge analysis. On November 22, 2011, PSEG provided an initial response to RAI No. 39, with the final response provided on December 9, 2011.

In October 2012, NRC issued NUREG/CR-7134, "The Estimation of Very-Low Probability Hurricane Storm Surges for Design and Licensing of Nuclear Power Plants in Coastal Areas", and JLD-ISG-2012-06, "Draft Interim Staff Guidance for Performing a Tsunami, Surge, or Seiche Hazard Assessment". NUREG/CR-7134 describes the method for determining storm surge using the Joint Probability Method (JPM). JLD-ISG-2012-06, while not applicable to licensing actions under 10 CFR Part 52, further describes the use of JPM in determining storm surge at operating nuclear power plants. On October 29, 2012, NRC staff issued RAI No. 67 which requested PSEG to "...provide an analysis of the PMH events using a conservative, current practice approach such as those predicted by a two-dimensional storm surge model (e.g., ADCIRC, FVCOM, SLOSH, other) with input from appropriate PMH scenarios and with resolution that captures the nuances of the bathymetry and topography near the project site."

On March 12, 2012, NRC issued a letter to PSEG's operating units at Artificial Island that required a reanalysis of their flooding hazard. The letter, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights From the Fukushima Dai-ichi Accident", requested "... that the reevaluation apply present-day regulatory guidance and methodologies being used for ESP and COL reviews including current techniques, software, and methods used in present-day standard engineering practice to develop the flood hazard." PSEG determined that the JPM-OS method, described in both NUREG/CR-7134 and JLD-ISG-2012-06, provided the most informed method for performing the flood reanalysis requested in RAI No. 67, and the flood hazard reanalysis for the operating units.

PSEG submitted the response to RAI No. 67 on November 27, 2013. The response describes PSEG's analysis of the Probable Maximum Storm Surge (PMSS) using a two-dimensional storm surge model (i.e., ADCIRC) with resolution that captures the nuances of the bathymetry and topography near the PSEG Site. The analysis also used JPM-OS, a simulation methodology that relies on development of statistical distributions of key hurricane input parameters, to develop model hurricanes and ultimately the maximum WSEL at selected annual exceedance probabilities at the PSEG Site.

The PMSS analysis developed a high resolution storm surge modeling system and used that modeling system in the JPM-OS process. The modeling system developed for this analysis consists of the TC96 Planetary Boundary Layer model to develop wind and pressure fields for each storm, the tightly coupled ADCIRC+SWAN storm surge and wave model, and use of the USACE Coastal Engineering Manual methods for analysis of wave run-up at the PSEG Site. This modeling system was verified and validated for use at the PSEG Site. The JPM-OS process applied to the PSEG Site required over 60 synthetic storm simulations in the modeling system, developing a still water level and total water level with wave run-up for each storm. The analysis included an independent review of the construct and results of the JPM-OS analysis by a recognized expert in the field of storm surge analysis.

PSEG's response to RAI No. 67 also included the proposed revisions to the SSAR, specifically SSAR Section 2.0 and Subsections 2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5, 2.4.6, 2.4.7, 2,4,8, 2.4.10, 2.4.11, and 2.5.4. The proposed revisions to the SSAR describe the JPM-OS analysis and resultant total WSEL at the PSEG Site of 30.3 ft. NAVD.

Based upon the above information, the temporary exemption would provide only temporary relief from the applicable regulation, and PSEG has made good faith efforts to comply with the regulation. Thus, special circumstance (v) is satisfied.

V. Conclusion

In summary, PSEG has satisfied all of the criteria justifying a temporary exemption from the provisions of 10 CFR 52.17(a)(1)(vi), and the NRC should grant the exemption. If the NRC grants PSEG's request for a temporary exemption, the final analysis of the probable maximum storm surge for the PSEG site will be deferred until the COL phase of the project.