

TurkeyPointRAIsPEm Resource

From: Comar, Manny
Sent: Wednesday, September 21, 2011 11:27 AM
To: TurkeyPointRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 36 RELATED TO SRP SECTION 02.04.05 FOR THE TURKEY POINT UNITS 6 AND 7 COMBINED LICENSE APPLICATION
Attachments: PTN-RAI-LTR-036.doc

Hearing Identifier: TurkeyPoint_COL_eRAIs
Email Number: 41

Mail Envelope Properties (377CB97DD54F0F4FAAC7E9FD88BCA6D0804FD57312)

Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 36 RELATED TO
SRP SECTION 02.04.05 FOR THE TURKEY POINT UNITS 6 AND 7 COMBINED LICENSE
APPLICATION

Sent Date: 9/21/2011 11:27:15 AM

Received Date: 9/21/2011 11:27:15 AM

From: Comar, Manny

Created By: Manny.Comar@nrc.gov

Recipients:

"TurkeyPointRAIsPEm Resource" <TurkeyPointRAIsPEm.Resource@nrc.gov>

Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	Size	Date & Time
MESSAGE	13	9/21/2011 11:27:15 AM
PTN-RAI-LTR-036.doc	60922	

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

September 21, 2011

Mano K. Nazar
Senior Vice President and Chief Nuclear Officer
Florida Power & Light Company
Mail Stop NNP/JB
700 Universe Blvd
Juno Beach, FL 33408-0420

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 036 RELATED
TO SRP SECTION 02.04.05 PROBABLE MAXIMUM SURGE AND SEICHE
FLOODING FOR THE TURKEY POINT NUCLEAR PLANT UNITS 6 AND 7
COMBINED LICENSE APPLICATION

Dear Mr. Nazar:

By letter dated June 30, 2009, as supplemented by letters dated August 7, 2009, September 3, 2010 and December 21, 2010, Florida Power and Light submitted its application to the U. S. Nuclear Regulatory Commission (NRC) for a combined license (COL) for two AP1000 advanced passive pressurized water reactors pursuant to 10 CFR Part 52. The NRC staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed application.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

To support the review schedule, you are requested to respond within 30 days of the date of this letter. If you are unable to provide a response within 30 days, please state when you will be able to provide the response. In the event the response submitted is incomplete, please indicate in the response when the complete response will be provided. If changes are needed to the final safety analysis report, the staff requests that the RAI response include the proposed wording changes. Your response should also indicate whether any of the information provided is to be withheld as exempt from public disclosure pursuant to 10 CFR 2.390.

If you have any questions or comments concerning this matter, you may contact me at 301-415-3863 or manny.comar@nrc.gov.

Sincerely,

/RA/

Manny Comar, Lead Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-040
52-041

Enclosure:
Request for Additional Information

CC: see next page

If you have any questions or comments concerning this matter, you may contact me at 301-415-3863 or manny.comar@nrc.gov.

Sincerely,

/RA/

Manny Comar, Lead Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-040
52-041
eRAI Tracking No. 5860

Enclosure:
Request for Additional Information

Distribution:

Public	BWeisman	BHughes
RidsNroDnrINwe1	JCruz	MComar
RidsNroLAKGoldstein	DMcGovern	TGalletta
RidsOgcMailCenter	BAnderson	RJoshi
RidsAcrcsAcnwMailCenter	RRaione	SPrice
RidsRgn2MailCenter	JSebrosky	DHabib
AMinarik	HJones	HAhn
DMisenhimer		

NRO-002

OFFICE	RHEB/BC	NWE1/PM	OGC	NWE1/L-PM
NAME	RRaione*	MComar*	BWeisman*	MComar*
DATE	6/16/11	6/16/11	7/13/11	9/16/11

*Approval captured electronically in the electronic RAI system.

OFFICIAL RECORD COPY

Request for Additional Information No. 5860

9/21/2011

Turkey Point Units 6 and 7

Florida P and L

Docket No. 52-040 and 52-041

SRP Section: 02.04.05 - Probable Maximum Surge and Seiche Flooding

Application Section: Section 02.04.05

QUESTIONS from Hydrologic Engineering Branch (RHEB)

02.04.05-4

The applicant's analysis of PMH-related storm surge includes apparently limited analysis of the sensitivity of storm surge predictions to variations in input parameters, including PMH forward speed.

Analysis of the effect of PMH forward speed on storm surge considered only two values for PMH forward speed, 6 knots and 20 knots, the upper and lower end of the range specified in NWS 23. The analysis found that the higher value resulted in higher storm surge elevations. Research has shown, however, that storm surge height is not always correlated with storm forward speed; somewhat slower storms sometimes can result in higher surge elevations. Therefore, the analysis may not demonstrate that a 20-knot forward speed is bounding, that is, that values of forward speed between 6 knots and 20 knots would not result in higher storm surge at the site of Turkey Point Units 6 and 7.

Provide reasoning and analysis sufficient to demonstrate that the effect of forward speed on storm surge elevation at the site of Turkey Point Units 6 and 7 has been bounded.

02.04.05-5

The new analysis that the Miami Beach data set appears to have some shortcomings. The most recent measurements are 20 years old, so the data set may not represent recent trends, and there are gaps in the record from earlier years. A data set exists for Key West that covers a longer period, continuing to the present time, and does not have gaps. R-squared values for both linear and nonlinear trend analyses of the Miami Beach data are much lower than those for trend analyses for Key West data (values of 0.32 to 0.35 for Miami Beach data (versus values of 0.45 and 0.46 for Key West data). Also, the applicant's attempt to fit a second-order trend to the Miami Beach data yields apparently counterintuitive results, in that it predicts a large drop in sea level, which suggests problems with the data set. The applicant's linear regression analysis of the Miami Beach and Key West data sets did, however, find a close correlation between sea level measurements at the two locations (R-squared of 0.85).

Provide reasoning and analysis sufficient to demonstrate that reliance on the Miami Beach sea-level data is a valid and sufficient basis for predicting potential future sea-level rise, when a longer and more recent data set for the region is available from Key West.

02.04.05-6

The applicant's analysis of PMH-related storm surge includes an apparently limited analysis of the sensitivity of storm surge predictions to variations in input parameters, including radius of maximum winds.

The analysis for the effect of radius of maximum winds considered values (in nautical miles) of 4 (the lower end of the range indicated in NWS 23), 12, 20 (the upper end of the range in NWS 23), 25, 30, 40, and 100. Radius of maximum wind values of 25, 30, and 40 nautical miles all resulted in storm surge elevations higher than were determined for a radius of 20 nautical miles. The highest storm surge elevation found by the analysis resulted from a radius of 30 nautical miles, at which value the predicted surge elevation at Units 6 and 7 was approximately 2.6 percent (3.5 percent, as a percentage of the surge height) higher than predicted when the radius of maximum wind was specified as 20 nautical miles. The applicant did not determine whether other values between 25 and 35 nautical miles could result in a higher estimated storm surge elevation. The applicant used the surge elevation for a 20-n.m. radius in its analysis, stating that the effect of the larger storm radius on storm surge was encompassed within the 20 percent adjustment to surge height that the applicant made to account for empirically determined uncertainty in storm surge estimation.

Although NWS 23 identified 20 nautical miles as the upper bound value of radius of maximum winds for a PMH, some major hurricanes striking the continental U.S. in recent years have had a larger radius of maximum winds.

In regard to storm surge height, please explain how consideration of a 20 nautical mile radius of maximum wind accounts for the most severe wind radius reported for the site and surrounding area, with sufficient margin. Provide technical justification for the conclusion that the adjustment to storm surge height made to account for uncertainty in storm surge estimation is sufficient to account for the deterministically estimated effect on storm surge of a radius of maximum wind larger than 20 nautical miles.