PMTurkeyCOLPEm Resource

From: Comar, Manny
Sent: Monday, September 27, 2010 12:08 PM
To: ADAMS IM
Cc: TurkeyCOL Resource
Subject: FW: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 007 RELATED TO SRP SECTION 03.07.01- SEISMIC DESIGN PARAMETERS FOR THE TURKEY POINT NUCLEAR PLANT UNITS 6 AND 7 COMBINED LICENSE APPLICATION
Attachments: PTN-ltr-007-rai4975.pdf

Please change the document's profile for the "Document Type " field from 'e-mail' to 'Request for Additional Information' for accession number

ML102670065

Thanks

From: Comar, Manny
Sent: Monday, September 27, 2010 12:03 PM
To: Antonio Fernandez; orthen, Richard; TurkeyCOL Resource; William Maher
Cc: Comar, Manny
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 007 RELATED TO SRP SECTION 03.07.01- SEISMIC DESIGN PARAMETERS FOR THE TURKEY POINT NUCLEAR PLANT UNITS 6 AND 7 COMBINED LICENSE APPLICATION

All:

Attached is the RAI letter No. 007 related to SRP section 03.07.01-Seismic Design parameters for the Turkey Point Units 6 and 7 Combined License Application.

The Accession number is ML102670065

If you have any further questions, please feel free to contact me. Thanks

Manny Comar
Senior Project Manager
NRO/DNRL/NWE1
Nuclear Regulatory Commission
301-415-3863
mailto:manny.comar@nrc.gov

Hearing Identifier: TurkeyPoint_COL_Public
Email Number: 2

Mail Envelope Properties (377CB97DD54F0F4FAAC7E9FD88BCA6D0297C4BF204)

Subject: FW: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 007 RELATED TO SRP SECTION 03.07.01- SEISMIC DESIGN PARAMETERS FOR THE TURKEY POINT NUCLEAR PLANT UNITS 6 AND 7 COMBINED LICENSE APPLICATION
Sent Date: 9/27/2010 12:08:06 PM
Received Date: 9/27/2010 12:08:08 PM
From: Comar, Manny

Created By: Manny.Comar@nrc.gov

Recipients:
"TurkeyCOL Resource" <TurkeyCOL.Resource@nrc.gov>
Tracking Status: None
"ADAMS IM" <ADAMS.IM@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
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PTN-ltr-007-rai4975.pdf	126176	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

TurkeyPointRAIsPEm Resource

From: Comar, Manny
Sent: Thursday, September 23, 2010 3:03 PM
To: TurkeyPointRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 007 RELATED TO SRP SECTION 03.07.01 SEISMIC DESIGN PARAMETERS FOR THE TURKEY POINT NUCLEAR PLANT UNITS 6 AND 7 COMBINED LICENSE APPLICATION
Attachments: PTN-RAI-LTR-007.doc

Hearing Identifier: TurkeyPoint_COL_eRAIs
Email Number: 9

Mail Envelope Properties (377CB97DD54F0F4FAAC7E9FD88BCA6D0297C4BEBDA)

Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 007 RELATED TO SRP SECTION 03.07.01 SEISMIC DESIGN PARAMETERS FOR THE TURKEY POINT NUCLEAR PLANT UNITS 6 AND 7 COMBINED LICENSE APPLICATION
Sent Date: 9/23/2010 3:03:18 PM
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From: Comar, Manny

Created By: Manny.Comar@nrc.gov

Recipients:
"TurkeyPointRAIsPEm Resource" <TurkeyPointRAIsPEm.Resource@nrc.gov>
Tracking Status: None

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MESSAGE	8	9/23/2010 3:03:19 PM
PTN-RAI-LTR-007.doc	56826	

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Priority: Standard
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Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

September 23, 2010

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. 007 RELATED TO SRP SECTION 3.07.01 SEISMIC DESIGN PARAMETERS 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 a letters dated August 7, 2009 and September 3, 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. 4975

Enclosure:
Request for Additional Information

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NRO-002

OFFICE	SEB1/BC	NWE1/PM	OGC	NWE1/L-PM
NAME	BThomas*	MComar*	PMoulding*	MComar*
DATE	08/04/10	08/04/10	08/05/10	9/23/10

*Approval captured electronically in the electronic RAI system.

OFFICIAL RECORD COPY

Request for Additional Information No. 4975

9/23/2010

Turkey Point Units 6 and 7
Florida P and L
Docket No. 52-040 and 52-041
SRP Section: 03.07.01 - Seismic Design Parameters
Application Section: 3.7 Seismic Design

QUESTIONS from Structural Engineering Branch 1 (AP1000/EPR Projects) (SEB1)

03.07.01-1

Figure 2.7 in Section 2.2 of Appendix 3KK (a.k.a. TPG-1000-S2R-802) indicates an East-West cross-section of the plant. It indicates that the plant is to be located on approximately 19 feet of concrete. The concrete extends to the side of the NI approximately 40 feet on each side. Fill is apparently placed atop the lean concrete to the sides of the NI. Section 7.0 of Appendix 3KK indicates that the 3D SSI analyses were performed using the generic NI20 FEM constructed by Westinghouse to determine seismic loads to the plant. This generic NI20 FEM model includes assumed uniform site conditions in and around the plant, rather than the relatively complex site-specific soil profile. Please justify why the FEM used to perform the site-specific SSI analyses did not include the NI20 model amplified by the supporting concrete/side fills as part of the complete structural model to determine the potential impact of this modified configuration on the computed responses.

03.07.01-2

Section 2.2 of Appendix 3KK also indicates that the fill to be added to the site will be composed of crushed limestone. Please describe the fill to be placed above the concrete supporting the foundation in Figure 2.7 of Appendix 3KK. If it will also be crushed limestone, please provide information on whether any long-term serviceability issues should be considered when judging adequacy of this material for use in providing support to the NPP. Please provide information on the data used to develop BE, LB and UB S- and P-wave velocity values comprised for the NEAR and FAR site soil profiles.

03.07.01-3

Please provide material property information on concrete cracking criteria to be used to judge acceptability of the placement of the supporting concrete pad under the NI, and the impact of such cracking on sliding and overturning stability of the concrete needed to support the NI.

03.07.01-4

Section 2.0 of Appendix 3KK indicates that the site is at or near sea level with a natural relief of about 3 feet across the site. The subsequent paragraph indicates that the

elevation of the site region varies from 3 feet below to 400 feet above sea level. Please explain how these two statements are consistent with one another and indicate whether the elevation change of about 400 feet across the site has any potential impact on SSI analyses that typically assume uniform horizontal soil layers. State If the meaning of the site region is much larger than the site, In addition, the question really has to do with evaluating the potential impact of site topography on SSI.

03.07.01-5

In light of the expected site ground water elevation, please provide information on potential for liquefaction of in-situ and fill soils when the generic plant design presumes that no potential for liquefaction exists at the site.

03.07.01-6

Section 5.1 of Appendix 3KK, SASSI Stick Model describes the 2D model of NI used to perform sensitivity analyses of the site. Please describe the details of the bathtub model used in the calculations, such as whether the 19-foot-thick concrete foundation mat is included in the SSI model and whether the configuration of the fill to the side of the NI is included. Please provide information as well on the free-field soil columns and ground motions used in the 2D calculations.

03.07.01-7

Section 6.0 of Appendix 3 KK, 2D SASSI Analysis Results presents a comparison of computed 2D SASSI results with the 3D generic design spectra developed for the six key locations of the NI. Given the potential differences in radiation damping between 2D and 3D calculations, please provide justification on why such comparisons shown in Figures 6-1 through 6-6 are appropriate to make.

03.07.01-8

Please provide information on frequency cut-offs used in the various 2D and 3D SSI calculations, including the effects of the frequency transmission capability of the site profiles used along with the NI20 FEM in the SASSI calculations.

03.07.01-9

Section 7.0 of Appendix 3KK, 3D SASSI Analysis, indicates that the original NI20 model was used for the various 3D SSI calculations. During the past year, errors identified in this model led to recent model modifications by Westinghouse and new SSI calculations being performed for the generic sites. In addition, modifications to the Shield Building have been made that have been incorporated into these revised calculations. Please provide information on whether these modifications have been incorporated into these site-specific SSI results.

03.07.01-10

Section 3JJ.1 of Appendix 3JJ, Development of Amplification Factors at FIRS Horizon, indicates that the procedure used in the randomization process to develop FIRS was the same as used in Section 2.5.2.5 in incorporating anelastic attenuation (the kappa value). It is typical, however, to remove the kappa effect from the layered soil profile description so as not to double count energy loss incorporated into the site damping moduli used in the SHAKE type calculations for the randomized profiles. Please provide details on how damping moduli were determined in these calculations to assure that the site response effects calculated in the FIRS calculations are consistent with the development of the UHRS developed in Section 2.5.2. Please provide information on selection of the BE and sigma variation of both shear wave velocity and hysteretic damping used in the randomization process for calculation of surface and FIRS spectra.

The explanation of the treatment of "kappa" in section 2.5.2 is adequate. Section 3.7 should merely refer back to section 2.5.2 to address this issue.

03.07.01-11

SASSI calculations generally assume an infinite extent of soil layers. Provide a rationale for the assumptions used in the FAR and NEAR soil profiles with respect to the horizontal extent of soils.

03.07.01-12

Section 3JJ.2 on Page 3JJ-4 of Part 2-- FSAR, Rev. 0 indicates that vertical spectra were obtained by applying V/H ratios obtained from RG 1.60. Please explain why these ratios were selected as opposed to V/H ratios from the generic data base for the characteristic events associated with the site-specific PSHA. Please explain why RG 1.6 V/H ratios were used as opposed to the recommendation available from the full data base that can then be reconciled with the site seismic hazard.

03.07.01-13

Section 3JJ.4, Spectral Matching of Acceleration Time Histories, indicates that seed records were selected from the database given in NUREG/CR-6728 for the LF de-aggregation results for magnitudes > 7 and distances > 500 km. However, the TAP024 record was selected from the Chi-Chi seismic event, which was indicated to be about 100 km from the recording station. Please indicate why this particular record was selected as opposed to another more distant event. In addition, please indicate whether these records have appropriate characteristics to match the damping associated with SSI and not just the 5% damped spectra.