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ACCESSION NBR: 9107260132 DOC. DATE: 91/07/19 NOTARIZED: NO DOCKET #
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 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335

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SUBJECT: Forwards "Probabilistic Seismic Hazard Evaluation & Uniform Hazard Spectra" rept & executive summary for St Lucie & Turkey Point Nuclear Power Plant sites.

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U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Re: St. Lucie Unit 1
Docket No. 50-335
Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Probabilistic Seismic Hazard Curves
For Turkey Point and St. Lucie Sites

In earlier correspondence to the NRC (L-89-352, dated October 2, 1989 and L-89-441, dated December 13, 1989), Florida Power & Light Company (FPL) stated that application of seismic attenuation factors from the Lawrence Livermore National Laboratory (LLNL) probabilistic seismic hazard curves to determine seismic risk to nuclear power plants east of the Rocky Mountains is not appropriate due to the unique seismic attributes of Florida. In addition to that correspondence, the LLNL seismic hazard curves were discussed at the NRC/FPL interface meeting held on April 24, 1991, in Juno Beach, Florida. At that meeting, FPL explained the problems associated with using the LLNL curves for FPL sites. FPL then committed to provide to the NRC an analysis completed by Ebasco Services Incorporated (ESI) for both FPL nuclear sites.

The "Probabilistic Seismic Hazard Evaluation and Uniform Hazard Spectra" report for the Turkey Point and St. Lucie nuclear power plant sites is enclosed with this letter. This ESI analysis computed the uniform seismic hazards for Turkey Point and St. Lucie using the source zones and seismicity parameters established by each of the six Electric Power Research Institute (EPRI) Technical Evaluation Contractors (TEC) and the source zones and seismicity parameters identified by ESI for the northern Caribbean. Hazard values calculated from these models were then aggregated in accordance with the EPRI recommendation procedure to generate the final hazard curves.

FPL initiated these studies and analyses for the FPL sites when it was recognized that, due to the very low seismic risk associated with Florida, most seismic data and research were devoted to other regions. Florida sites were grouped with the other regions even though Florida's geology was different. This resulted in seismic risk estimates for FPL sites which were not based on FPL site parameters. The seismic hazard curves provided in the ESI study were developed for FPL sites and are based on Florida's geological structure and FPL site characteristics. These curves were subject

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to verification in accordance with the Ebasco Quality Assurance Program.

The risk of exceeding the design basis earthquakes for Turkey Point Units 3 and 4 and St. Lucie Unit 1 can be obtained from these seismic hazard curves. It is FPL's position that the risk probabilities for exceeding the design basis earthquakes, as presented in the NRC letter to FPL dated January 23, 1991 (R. Auluck/J.A. Norris to J.H. Goldberg), can now be revised to use the FPL site specific seismic data as opposed to data developed for the LLNL seismic hazard curves. It should be noted that when using the LLNL seismic hazard curves with their large uncertainty for seismic attenuation factors, the Turkey Point site seismic risk is calculated to be much greater than the seismic risk at St. Lucie. There are no earthquake-producing faults in the Florida region and risk becomes a factor based on attenuation coefficients. The ESI analysis determined that the annual probability of exceeding the Operating Basis Earthquake (OBE) at Turkey Point and St. Lucie is approximately $5.6E-05$ and $6.0E-05$, respectively. Since Turkey Point is farther from the known sources, the associated risk should be less, as is demonstrated in the ESI evaluation. This demonstrates the weakness in using the LLNL hazard curves for the FPL sites.

FPL proposes that the NRC use these site specific curves when considering the seismic risk associated with the Turkey Point or St. Lucie site. FPL will use these seismic hazard curves as input when analyzing the seismic effects of external events (IPEEE) on FPL sites. In addition to the ESI evaluation, an executive summary is also provided.

Should there be any questions concerning this evaluation, the seismic hazard curves or their use, please contact us.

Very truly yours,



W.H. Bohlke
Vice President
Nuclear Engineering and Licensing

WHB/RG

Enclosures

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, St. Lucie Plant
Senior Resident Inspector, USNRC, Turkey Point Plant

