UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 7, 2013

Mr. C. R. Pierce
Regulatory Affairs Director
Southern Nuclear Operating Company, Inc.
Post Office Box 1295, Bin - 038
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 – REQUEST FOR ADDITIONAL INFORMATION (TAC NOS. MF1117 and MF1118)

Dear Mr. Pierce:

By letter dated March 5, 2013, Southern Nuclear Operating Company, Inc., provided the reevaluation flood hazard report in response to Enclosure 2 of the March 12, 2012, Fukushima Lessons-Learned 50.54(f) letter. The Nuclear Regulatory Commission staff requests additional information as noted in the enclosure.

Please provide the additional information within thirty (30) days of the date of this letter.

Sincerely,

Robert Martin

Robert E. Martin, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

FLOODING RE-EVALUATION

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

1. Local Intense Precipitation Flooding – electronic files

   The licensee is requested to provide electronic versions of the input files used for HEC-HMS and HEC-RAS models in Section 2.1 of the Flood Hazard Reevaluation Report (FHRR) related to the local intense precipitation flood analyses.

2. Local Intense Precipitation Flooding – drainage ditch

   The licensee is requested to provide detailed descriptions of the Units 3 and 4 drainage ditch during construction and post-construction phases so that the staff can review the licensee's assumption that the local intense precipitation flood analyses is more conservatively analyzed using the construction-phase configuration of the Units 3 and 4 drainage ditch.

3. Local Intense Precipitation Flooding - map

   The licensee is requested to provide electronic versions of the Units 1 and 2 plant layout and elevation map presented in the Attachment 1, Sheet 1-of-1 in Calculation Package No. X2CA77 so that the staff can understand the pattern of the onsite drainage related to the local intense precipitation flood analyses. The licensee is also requested to provide descriptions of the sources of the elevation data, the methods used to incorporate (interpolate) elevation measurements into local intense precipitation flood analysis, and the likely magnitude of the errors in the local intense precipitation flood analyses associated with these elevation errors.

4. Local Intense Precipitation Flooding – site features

   The licensee is requested to provide (1) a discussion of roof drainage features (e.g., scuppers, gutter outlets, etc.) for plant buildings, and how runoff from these drainage features are incorporated into the local intense precipitation flood analyses; (2) a detailed description of the methods and site data used to develop and apply the Vehicle Barrier System (VBS) stage-volume relationship, the VBS broad-crested weir equations, and the VBS rating curves related to the local intense precipitation flood analysis; and (3) an electronic versions of the spreadsheet used to construct the VBS rating curves described in Calculation Package No. X2CA77.

5. Local Intense Precipitation Flooding – PMP

   The licensee stated in Section 2.1 of the FHRR that the local intense precipitation (LIP) flood analysis is based on a 6-hr onsite probable maximum precipitation (PMP) scenario. Since a longer duration PMP may induce higher flood levels and/or longer inundation durations, the licensee is requested to justify, based on a sensitivity analysis, whether

the 6-hr probable maximum precipitation scenario used in the LIP analyses bounds the flood effects of LIP in comparison with alternative-duration PMP scenarios, such as 12-hr, 48-hr, and 72-hr probable maximum precipitation values.

6. Local Intense Precipitation Flooding – Power block

The licensee stated in the FHRR (page 15) that the LIP flooding within the Units 1 and 2 power block area is simulated by HEC-HMS with an assumption that the entire power block area is represented by a single hypothetical reservoir encompassed by the Vehicle Barrier System. The licensee also assumed that the LIP flood level is instantaneously leveled over the power block area, and that the flood level within power block area is determined by weir flow over the top of the Vehicle Barrier System. This simulation scheme may result in an underestimation of the LIP flood level if the level-pool assumption is not consistent with conditions at the time of the peak precipitation. In general, terrain and flood levels within the power block area varies and overland flow can be interrupted by buildings; both potentially causing water to accumulate to a greater depth. Based on these considerations, the licensee is requested to: (a) clarify the assumed flow path of water between the various structures in the power block area, and (b) determine the maximum water heights near safety-related structures based on flood routing using measured elevation data within the power block area.

7. Hazard Input for the Integrated Assessment

By letter dated May 24, 2013, the licensee clarified text contained in the FHRR and confirmed that the licensee will perform an integrated assessment. The licensee is further requested to clarify which flood hazard mechanisms will be included in the Integrated Assessment.

8. Hazard Input for the Integrated Assessment – Duration parameters

The March 12, 2012, 50.54(f) letter, Enclosure 2, requests the licensee to perform an integrated assessment of the plant's response to the reevaluated hazard if the reevaluated flood hazard is not bounded by the current design basis. Flood scenario parameters from the flood hazard reevaluation serve as the input to the integrated assessment. To support efficient and effective evaluations under the integrated assessment, the NRC staff will review flood scenario parameters as part of the flood hazard reevaluation and document results of the review as part of the staff assessment of the flood hazard reevaluation.

The licensee is requested to provide the applicable flood event duration parameters (see definition and Figure 6 of the Guidance for Performing an Integrated Assessment, JLD-ISG-2012-05) associated with mechanisms that trigger an integrated assessment using the results of the flood hazard reevaluation. This includes (as applicable) the warning time the site will have to prepare for the event (e.g., the time between notification of an impending flood event and arrival of floodwaters on site) and the period of time the site is inundated for the mechanisms that are not bounded by the current design basis. The licensee is also requested to provide the basis or source of information for the flood event duration, which may include a description of relevant forecasting methods (e.g.,

products from local, regional, or national weather forecasting centers) and/or timing information derived from the hazard analysis.

9. Hazard Input for the Integrated Assessment – Flood height

The March 12, 2012, 50.54(f) letter, Enclosure 2, requests the licensee to perform an integrated assessment of the plant's response to the reevaluated hazard if the reevaluated flood hazard is not bounded by the current design basis. Flood scenario parameters from the flood hazard reevaluation serve as the input to the integrated assessment. To support efficient and effective evaluations under the integrated assessment, staff will review flood scenario parameters as part of the flood hazard reevaluation and document results of the review as part of the staff assessment of the flood hazard reevaluation.

The licensee is requested to provide a summary of the flood height and associated effects (as defined in Section 9 of JLD-ISG-2012-05) for mechanisms that trigger an Integrated Assessment. This includes the following quantified information for each mechanism (as applicable):

- Flood height,
- Wind waves and run-up,
- Hydrodynamic loading, including debris,
- Effects caused by sediment deposition and erosion (e.g., flow velocities, scour),
- Concurrent site conditions, including adverse weather,
- Groundwater ingress, and
- Other pertinent factors.

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