January 11, 2010

MEMORANDUM TO: Gloria J. Kulesa, Branch Chief
Plant Licensing Branch 2-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Meena K. Khanna, Branch Chief ***/RA/***
Mechanical and Civil Engineering Branch
Division of Engineering
Office of Nuclear Reactor Regulation

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE OCONEE EXTERNAL FLOODING ISSUE (TAC NOS. ME3065, ME3066, AND ME3067)

The staff of the Mechanical and Civil Engineering Branch of the Division of Engineering has completed its review of Duke's November 30, 2009, letter regarding the licensee's response to the NRC's 50.54(f) letter for the Oconee external flooding issue. EMCB's request for additional information is provided in the enclosure.

Docket Nos.: 50-269, 50-270, 50-287

Enclosure:
As stated

CONTACT: Raman Pichumani, NRR/DE/EMCB
301-415-3621

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January 14, 2010

MEMORANDUM TO: Gloria J. Kulesa, Branch Chief
Plant Licensing Branch 2-1
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Office of Nuclear Reactor Regulation

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ADAMS ACCESSION NO.:ML100150066

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REQUEST FOR ADDITIONAL INFORMATION –
OCONEE EXTERNAL FLOODING ISSUE

Based on the staff's assessment of Duke's November 30, 2009, letter, the staff has identified that additional information is needed in order to have reasonable assurance that the parameters and sensitivity analyses adequately identify the amount of water that could result at the site due to a potential external flooding event. The staff believes that the issues identified below could potentially impact the flood level that Duke has identified with regards to Case 2, as provided in its letter.

1. Justify any assumptions used for parameters associated with the Jocassee reservoir project, including all the structures (main dam, saddle dikes, discharge gates, intake structures, turbines, etc.).

2. Justify the use of the different Manning n values for the following areas: Little River Basin below the channel, the Keowee River below Jocassee tailrace reach, and in the Keowee tailrace extension to the road bridge. Discuss how the n-value selected represents a conservative defendable value (high or low) for the specific reach of river for the water level at the point of interest.

3. Justify the armoring of the intake canal in your model. Explain how armoring of the intake canal will direct the flow of water during a potential breach and identify areas of the plant where water is likely to be higher due to armoring of the canal (i.e., what is the effect of a different breach location?).

4. Will a wider and faster breach of Keowee dam increase any of the water levels at the plant for which flood protection measures are being considered?

5. Organize the final runs such that the set of parameters that provides the highest water level for each point of interest (flood barrier, SSF, any other necessary points of personnel ingress and etc.) can be identified and evaluated for reasonable conservatism.

6. Provide the key for your runs associated with the sensitivity analysis.

7. Provide a copy of the HEC-RAS model that was used for your runs.

8. Provide a copy of the topology associated with the area below Keowee Dam and around the Oconee site, yard, and switchyard.

9. Provide/discuss the structural stability evaluation that you may have performed to show that the SSF external walls can withstand the hydrostatic loading due to the increased flood elevation (approx.18 ft) at the ONS yard; also show that the walls can withstand the static and dynamic forces from the coincident wave activity as required by ANS 2.8.

10. What is the ID number for the procedure that Duke would use to make operational decisions in the event of an impending major storm and possible PMF? Provide a copy of the procedure.

11. Other Dam Procedures

(a) Provide a copy of the procedures to be followed during an outage of one or more turbines (such as reduction of reservoir level or modified operation of spillway gates).
(b) Provide a copy of the procedures to be followed if a gate is found to be inoperable.