



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

April 7, 2011

Mr. J. R. Morris  
Site Vice President  
Catawba Nuclear Station  
Duke Energy Carolinas, LLC  
4800 Concord Road  
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2, REQUEST FOR  
ADDITIONAL INFORMATION (RAI) RELATED TO GENERIC LETTER (GL)  
2008-01, "MANAGING GAS ACCUMULATION IN EMERGENCY CORE  
COOLING, DECAY HEAT REMOVAL, AND CONTAINMENT SPRAY  
SYSTEMS" (TAC NOS. MD7809 AND MD7810)

Dear Mr. Morris:

By letter dated October 13, 2008, and March 4, 2010, Duke Energy Carolinas, LLC, submitted information in response to GL 2008-01 for the Catawba Nuclear Station, Units 1 and 2. The Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's submittal and determined that additional information is needed in order to complete our review. The enclosed document describes this RAI. A written response should be provided to the NRC staff within 30 days of the issuance of this letter in order to support our timely review of this application. Please inform me if you are unable to support this response timeframe.

If you have any questions, please call me at 301-415-1119.

Sincerely,

A handwritten signature in black ink that reads "Jon Thompson".

Jon Thompson, Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosure:  
RAI

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REQUEST FOR ADDITIONAL INFORMATION (RAI)  
BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
REGARDING GENERIC LETTER 2008-01, "MANAGING GAS ACCUMULATION IN  
EMERGENCY CORE COOLING, DECAY HEAT REMOVAL, AND  
CONTAINMENT SPRAY SYSTEMS" (TAC NOS. MD7809 AND MD7810)  
CATAWBA NUCLEAR STATION, UNITS 1 AND 2 (CATAWBA 1 AND 2)  
DOCKET NOS. 50-413 AND 50-414

By letters dated October 13, 2008 (Reference 1), and March 4, 2010 (Reference 2), Duke Energy Carolinas, LLC (Duke, the licensee), submitted information in response to Generic Letter (GL) 2008-01 "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," for Catawba 1 and 2.

On the basis of the provided information, the Nuclear Regulatory Commission (NRC) staff has concluded that additional information is required from the licensee in order for the NRC staff to determine that the licensee has acceptably demonstrated "that the subject systems are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance" as stated in GL 2008-01.

There have been several public meetings with Nuclear Energy Institute (NEI) and industry on the topic of GL 2008-01. The NRC staff has continued to update its guidance to inspectors as new information becomes available; the most recent revision is Reference 3. At the public meeting on June 2, 2010 (Meeting Summary at Agencywide Documents Access and Management System (ADAMS), Accession No. ML101650201), between the NRC staff and NEI, and in Reference 4, the NRC staff and industry agreed on various void criteria, including the Froude numbers required to credit dynamic venting.

Reference 3, Section 1.4.3, states, "At  $N_{FR}$  [Froude Number]  $\leq 0.65$ , some gas may be transported and if  $N_{FR} \geq 2.0$ , all gas will be carried out of a pipe with the flowing water. Time to clear gas from a pipe for  $0.8 < N_{FR} < 2.0$  is a function of flow rate. Dynamic venting may not be assumed effective for  $N_{FR} < 0.8$ . Time to clear gas as a function of time will be addressed in a later revision of this document when we have received and evaluated test data that supports clearance behavior."

Reference 1 states, "... dynamic venting is credited (Froude number of  $> 0.55$  for horizontal piping runs and  $>1.0$  for vertical piping runs)."

Reference 2 clarifies this by stating, "The criteria used was derived from WCAP-16631-NP." Reference 2 went on to say, "It is acknowledged that gas may be removed from piping at lower Froude numbers. In the end, UT [ultrasonic testing] was conducted at numerous points on the subject systems and the piping was found to be full with the one exception mentioned above."

Enclosure

The NRC staff has the following questions:

1. Please provide justification for crediting dynamic venting with Froude numbers between 0.55 and 0.8.
2. Please verify the statement that UT is used to verify that dynamically flushed piping remains sufficiently full with respect to such areas as vertical U-tube heat exchangers and valve internal configurations where UT cannot be used if dynamic flushing involves these locations. If dynamic flushing is not used for these areas, then describe how they are determined to be sufficiently full.

#### REFERENCES

1. Letter from Thomas P. Harrall, Duke, to Document Control Desk (DCD), NRC, "Duke Energy Carolinas, LLC (Duke); Oconee Nuclear Station, Units 1, 2 & 3, Docket Nos. 50-269, 50-270, 50-287; McGuire Nuclear Station, Units 1 & 2, Docket Nos. 50-369, 50-370; Catawba Nuclear Station, Units 1 & 2, Docket Nos. 50-413, 50-414; Generic Letter 2008-01, 9-Month Response," dated October 13, 2008 (ADAMS Accession No. ML082900490).
2. Letter from James R. Morris, Duke, to DCD, NRC "Response to Request for Additional Information Regarding Generic Letter 2008-01, 'Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems,'" dated March 4, 2010, (ADAMS Accession No. ML100640548).
3. NRC Regulatory Guidance, "Guidance To NRC/NRR/DSS/SRXB Reviewers for Writing TI [Temporary Instruction] Suggestions for the Region Inspections," dated December 6, 2010 (ADAMS Accession No. ML103400347).
4. Electronic mail from Warren Lyon, NRC, to Jim Riley, NEI, "RE: Interim Clean Section 1 4 (3).docx," June 7, 2010 (ADAMS Accession No. ML102090074).

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*/RA/*

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Plant Licensing Branch II-1  
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Docket Nos. 50-413 and 50-414

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RAI

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ADAMS Accession No. ML11094A019

\* memo dated 2/8/11 w/no significant changes to input

OFFICE	NRR/LPL2-1/PM	NRR/LPL2-1/LA	NRR/SRXB/BC	NRR/LPL2-1/BC	NRR/LPL2-1/PM
NAME	JThompson	MO'Brien	AUIses*	GKulesa	JThompson
DATE	04/6/11	04/6/11	02/08/11	04/7/11	04/7/11

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