June 18, 2008

Mr. William E. Smith
206 General J. E. Johnston Street
Stanley, NC 21164

Dear Mr. Smith:

In your letter to the Executive Director for Operations (EDO) of the U.S. Nuclear Regulatory Commission (NRC), dated March 24, 2008, you requested pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 2, Section 2.206 of the NRC's regulations that McGuire Nuclear Station, Unit 2, not be allowed to start up because of your concern that there is a potential for a massive number of tubes in one of the "A" high-pressure feedwater heaters at the McGuire Nuclear Station, Units 1 and 2, to rupture because of broken top support plates. You also expressed concerns that this event could cause feedwater to enter the main turbine resulting in destruction of the turbine which in turn could cause extensive damage to the control room. Your petition request was referred to the Office of Nuclear Reactor Regulation (NRR), which supports the NRC's mission to protect public health, safety, and the environment by developing and implementing rulemaking, licensing, oversight, and incident response programs for operating reactors.

An NRR Petition Review Board (PRB) was convened to consider your petition request. The PRB's initial recommendation was that your petition request not be accepted for review pursuant to 10 CFR 2.206. The petition manager, Mr. John Stang, of the NRC staff spoke with you by telephone on March 26, 2008, and informed you that the initial recommendation of the PRB was not to accept your March 24, 2008, letter as a 10 CFR 2.206 petition, because it did not satisfy the criteria of NRC Management Directive 8.11, "Review Process for 10 CFR 2.206 Petitions". The petition manager also offered you an opportunity to address the PRB and, to provide any relevant additional information and support for the request in light of the PRB's recommendations. During the phone call, you indicated that you would like to address the PRB by telephone-conference on March 31, 2008. On March 27, 2008, you contacted the petition manager and indicated that you would like to first meet with Duke Energy Carolinas, LLC (the licensee), and then address the PRB in person on April 7, 2008.

On April 7, 2008, a Category 3 public meeting was held at the NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to provide you with an opportunity to present additional information concerning your petition request. This meeting also provided the NRC staff and the licensee, an opportunity to ask clarifying questions concerning your petition request. During the meeting you provided supplemental information that was contained in your letter dated April 5, 2008, addressed to the EDO. Additional information which you provided during the meeting also included an original report prepared for the licensee in 1990 by Mr. Thomas G. Haynes of PPHX. You indicated that portions of the report may be proprietary in nature. By letter dated April 16, 2008, the licensee provided the NRC with a redacted version of the report (Agencywide Documents Access and Management System (ADAMS) Accession No. ML081130482), and requested proprietary treatment of the redacted portions pursuant to 10 CFR 2.390. A transcript of the

meeting is publicly available (See ADAMS Accession No. ML081070451). On May 14, 2008, the NRC issued a summary of the meeting (See ADAMS Accession ML081160139).

The NRC staff reviewed the additional information you provided at the April 7, 2008, meeting, the information in your March 24, 2008, and April 5, 2008, letters and the 1990 PPHX report you had provided at the meeting. The PRB met again on April 23, 2008, to consider your petition request. The PRB again recommended that your petition request should not be accepted for review pursuant to 10 CFR 2.206. On May 1, 2008, the petition manager contacted you by telephone and informed you of the PRB's final recommendation. During that phone conversation you indicated that you would be attending a public meeting being held by the NRC concerning the licensee constructing the Lee Nuclear plant in Gaffney South Carolina, on May 1, 2008. You indicated that at the meeting you would be providing additional information concerning your 10 CFR 2.206 petition request. A transcript of the proceedings was made and is publicly available (See ADAMS Accession No. ML081400038).

The NRC staff reviewed the transcript of the May 1, 2008, public meeting. A PRB meeting was held on May 28, 2008, to further consider all the information you provided to the NRC concerning your petition request. The PRB again recommended that your petition request not be accepted for review pursuant to 10 CFR 2.206 because you did not provide facts sufficient to constitute a basis for the requested action, and because you raised issues that have already been the subject of NRC staff review and evaluation for McGuire Nuclear Station, Units 1 and 2, which were resolved. You provided no new information to challenge the NRC staff's previous conclusion. Specifically, you did not provide information to indicate how the failure of nonsafety-related equipment in the turbine building (i.e., the high-pressure turbine rotor) could cause damage to essential safety-related equipment located in the control room or other locations at the site.

The potential generation of large turbine-generator missiles was within the scope of NRC staff's review for initial licensing of McGuire Nuclear Station, Units 1 and 2. Table 3-9, "Category 1 Structures and Missiles Protected Against," of the McGuire Nuclear Station, Units 1 and 2, Updated Final Safety Analysis Report (UFSAR) indicates that the safety-related buildings at the site, including the building housing the control room, are designed to protect essential safety-related equipment from turbine missiles. Table 3-15, "Properties of Credible Turbine Missiles," in the McGuire Nuclear Station, Units 1 and 2, UFSAR defines characteristics (i.e., weight, exit velocity, energy, and area) of credible missiles potentially produced by over-speed failure of the low-pressure turbine rotor. The UFSAR indicates that a postulated missile with a weight of 3961 pounds and an exit velocity of 345 feet per second dictates the minimum thickness of barriers necessary to protect essential equipment. These missile characteristics are representative of a large fragment of a low-pressure turbine rotor disk after penetrating the low-pressure turbine casing. The high-pressure rotor, which could be damaged by water back-flowing from the "A" feedwater heater through the extraction steam line, is a one-piece forging. The rotational energy of the turbine at normal operating speeds is insufficient to credibly fracture the one-piece high-pressure turbine rotor, and the NRC staff has no credible information that the high-pressure rotor could become a one-piece missile due to water entry. In addition, the high-pressure rotor casing is significantly thicker than the low-pressure turbine casing, reducing the potential of any high-pressure turbine missiles to penetrate the casing. Thus, the existing missile barrier design criteria in the McGuire Nuclear Station, Units 1 and 2, UFSAR bound the scenario described in your petition request in that essential equipment is protected from the largest credible turbine missiles.

The operating experience since 1990 (i.e., the absence of heater tube ruptures) suggests that the licensee has adequately managed the reliability of the feedwater heaters. If feedwater heater tubes should rupture, the McGuire Nuclear Station, Units 1 and 2, plant design includes nonsafety-related design features (e.g., level sensors, isolation valves, high-level dump valves and a check valve) to divert water to the main condenser and prevent it from entering the main turbine. After a thorough review of the information you provided, the NRC staff concluded that failure of feedwater heater tubes to the extent necessary to cause a catastrophic failure of the high-pressure turbine, which could result in the failure of safety-related equipment, is very unlikely in light of: (1) control room and emergency diesel generator room missile protection design and orientation; (2) licensing-basis turbine missile analysis; (3) the existence of isolation and check valves, and level-controlled heater drain pumps, as well as the maintenance of these components; and (4) periodic eddy-current testing of the subject feedwater heaters.

As you requested at the April 7, 2008, meeting, enclosed with this letter is the original copy of the 1990 PPHX report. Thank you for your interest in this matter and being part of the regulatory process. If you have any questions, please feel free to contact Mr. John Stang of my staff at 301-415-1345.

Sincerely,

/RA/

Timothy McGinty, Acting Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-369 and 50-370

Enclosure:
Mr. Thomas G. Haynes' Report 1990

cc w/o encl: See next page

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Timothy McGinty, Acting Director
Division of Operating Reactor Licensing
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Package: ML081630224 Letter: ML081630262
Incoming: ML0808505018 Incoming: ML080990550
PRB Meeting Summary: ML081160139 Pulbic Meeting Transcript: ML081070451

OFFICE	NRRLPL2-1/PM	NRR/LPL2-1/LA	NRR/LPL2-1/BC	RGN II	DDS/D	DPR/ADD	NRR/DORL/AD
NAME	JStang by phone	MO'Brien	MWong	LWert	WRuland	MMaxin	TMcGinty
DATE	6/17/08	6/16/08	6/16/08	6/19/08 by phone	6/18/08	6/18/08	6/18/08

OFFICIAL RECORD COPY

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