



**Kelvin Henderson**  
Vice President  
Catawba Nuclear Station

**Duke Energy**  
CNO1VP | 4800 Concord Road  
York, SC 29745

o: 803.701.4251  
f: 803.701.3221

CNS-15-079

September 4, 2015

10 CFR 50.55a

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC (Duke Energy)  
Catawba Nuclear Station, Unit 1  
Docket Number 50-413  
Relief Request Serial Number 15-CN-001, Proposed Alternative Repair for Main  
Steam System Braided Flex-Hose - Submitted Pursuant to 10 CFR 50.55a(z)(2)

- References:
1. Letters from Duke Energy to NRC, same subject, dated March 19, 2015 (ADAMS Accession Number ML15082A074), May 4, 2015 (ADAMS Accession Number ML15127A170), and July 16, 2015 (ADAMS Accession Number ML15201A499).
  2. Letter from NRC to Duke Energy, Catawba Nuclear Station, Unit 1 - Request for Additional Information Regarding Relief Request 15-CN-001, dated August 4, 2015 (ADAMS Accession Number ML15215A693).

The Reference 1 letters collectively comprise Duke Energy's submittal of Relief Request 15-CN-001 requesting approval to use an alternative repair for a Main Steam System leaking braided flex hose. The Reference 2 letter transmitted Requests for Additional Information (RAIs) concerning the Relief Request. The purpose of this letter is to respond to these RAIs. Duke Energy's response is contained in the enclosure to this letter. The format of the enclosure is to restate each RAI question, followed by its response.

There are no regulatory commitments contained in this letter or its enclosure.

If you have any questions or require additional information, please contact L.J. Rudy at (803) 701-3084.

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Very truly yours,

A handwritten signature in black ink, appearing to read 'K. Henderson', with a stylized flourish at the end.

Kelvin Henderson  
Vice President, Catawba Nuclear Station

LJR/s

Enclosure

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xc (with enclosure):

V.M. McCree  
Regional Administrator  
U.S. Nuclear Regulatory Commission - Region II  
Marquis One Tower  
245 Peachtree Center Ave., NE Suite 1200  
Atlanta, GA 30303-1257

G.A. Hutto III  
NRC Senior Resident Inspector  
Catawba Nuclear Station

G.E. Miller (addressee only)  
NRC Project Manager (Catawba)  
U.S. Nuclear Regulatory Commission  
One White Flint North, Mail Stop 8 G9A  
11555 Rockville Pike  
Rockville, MD 20852-2738

Enclosure

Response to NRC Requests for Additional Information (RAIs)

REQUEST FOR ADDITIONAL INFORMATION REGARDING

CATAWBA NUCLEAR STATION, UNIT 1

RELIEF REQUEST 15-CN-001

ALTERNATE REPAIR FOR FLEX HOSE STEAM LEAK

DOCKET NO. 50-413

By letter dated March 19, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15082A074), Duke Energy Carolinas (Duke) submitted a relief request for the Catawba Nuclear Station, Unit 1. The proposed relief would allow the implementation of an alternate repair method for a steam leak. Duke has provided supplements to the submittal dated May 4, 2015, and July 16, 2015 (ADAMS Accession Nos. ML15127A170 and ML15201A499, respectively). In order for the U.S. Nuclear Regulatory Commission (NRC) staff to complete its review of the relief request, the following additional information is requested.

1. The request stated that it is proposing an alternative to the requirements of ASME Code Section XI, Appendix IX, Article IX-1000, General, (c) (2), in order to use a mechanical clamping device on a system that forms part of the containment boundary. The licensee also stated that the clamping device will be designed to Appendix IX, Article IX-3000. The NRC requests that Duke verify that it will also meet all of the other requirements of Appendix IX.

**Duke Energy Response:**

**The mechanical clamping device being used as a piping pressure boundary in this application meets all of the requirements of ASME Code Section XI, Appendix IX with the exception of the limitation specified by Article IX-1000 (c) (2).**

2. The request stated that the injection valve to be installed is ASME Code Class 1. The NRC requests that the applicant describe the code class of the other materials that will be used.

**Duke Energy Response:**

**The mechanical clamping device is being used as a pressure boundary for a section of ASME Section III, Subsection NC Class 2, Duke Class B piping. All of the mechanical clamping device pressure boundary components are constructed from materials certified to the requirements of ASME Section III, Subsection NC Class 2 with the exception of the injection valve which is certified to the requirements of ASME Section III, Subsection NB Class 1.**

3. The request stated that sealant will be injected into the piping between the root valves. The NRC requests that the licensee provide the temperature rating of the sealant and verify that the sealant does not contain contaminants, such as fluorides or chlorides, that could be detrimental to stainless steel pressure boundary components.

**Duke Energy Response:**

The sealant compound has an application temperature range of 248°F to 842°F. This temperature range bounds the system design temperature of 600°F.

The sealant compound to be used in this application has been tested and certified by Duke Energy as compatible for use with stainless and nickel materials. All applicable Duke Energy power chemistry program limits (chlorides, fluorides, zinc, lead, sulfur) have been satisfied for this sealant compound such that potential failure modes related to stress corrosion cracking are minimized.

4. The request stated that the clamping device is designed to Appendix IX, Article IX-3000. The NRC requests that Duke verify that the piping system, with the clamp installed and sealant injected, has been analyzed for and meets all normal operating loads, seismic loads and accident conditions.<sup>1</sup>

**Duke Energy Response:**

The branch piping containing the root valves has been evaluated for the additional weight of the mechanical clamping device along with the injection material and pressure for normal, upset, and faulted conditions and has been shown to meet the requirements of ASME Section III, Subsection NC-3600.

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<sup>1</sup> Question 4 was identified as a result of the discussion of the draft RAs.