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U.S. Nuclear Regulatory Commission
Washington, DC 20555

10 CFR 50.55a

Duke Energy Carolinas, LLC (Duke Energy)
Oconee Nuclear Station, Units 1, 2 and 3
Docket Numbers 50-269, 50-270, 50-287
Renewed License Numbers DPR-38, DPR-47, and DPR-55

Subject: Response to Request for Additional Information (RAI) for Relief Request 14-ON-001, Letdown Cooler Nozzle Welds (CAC NOS. MF6290, MF6291 AND MF6292) (ADAMS Accession No. ML16061A565)

Pursuant to 10 CFR 50.55a(g)(5)(iii), Duke Energy submitted Relief Request 14-ON-001 on May 4, 2015, requesting that NRC renew a relief request from the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) regarding the impracticality of inspection of inside radius sections of the Letdown Cooler nozzles for the duration of the fifth (ten-year) inservice inspection (ISI) interval. The NRC submitted a Request for Additional Information on March 9, 2016 regarding this Relief Request. The Duke Energy response to the RAI questions is attached as an enclosure to this letter.

There are no regulatory commitments associated with this letter.

If there are any questions, or further information is needed, you may contact David Haile in Regulatory Affairs at (864) 873-4742.

Sincerely,

Scott L. Batson
Vice President
Oconee Nuclear Station

Enclosure:
Oconee Nuclear Station Unit 1, 2 and 3, Response to Request for Additional Information (RAI), regarding Relief Request 14-ON-001 for Letdown Cooler Nozzle Welds.

DESIGNATE AS ORIGINAL
JAMES A. HALL 5/19/2016

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Enclosure

Oconee Nuclear Station Unit 1, 2 and 3, Response to Request for Additional Information (RAI), regarding Relief Request 14-ON-001 for Letdown Cooler Nozzle Welds

RAI Question 1

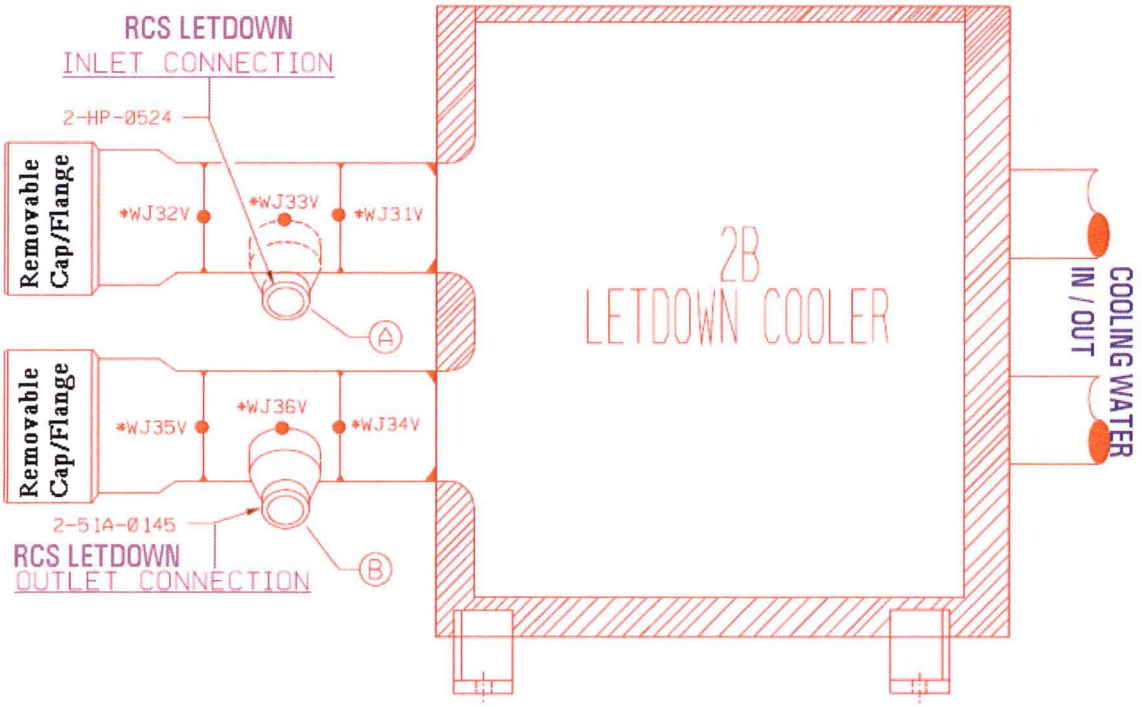
Please provide a more detailed description of the nozzle inside radius sections that are required to be ultrasonically examined per the ASME Code, Section XI, by either referring to the drawings in the relief request as a guide or by providing additional sketches or drawings of the subject welds/nozzles.

Duke Energy's Response RAI #1:

The welds WJ33V and WJ36V in Sketch 1 below represent the typical nozzle to cooler welds for all letdown coolers and all units. These welds are inspected per ASME Section XI, Table IWB-2500-1, Exam Category B-D, Item No. B3.150 and are not within the scope of this relief request.

This relief request only applies to inspections for Item B3.160 exams of the inner radius section of the nozzle base material (see Sketch 2 below).

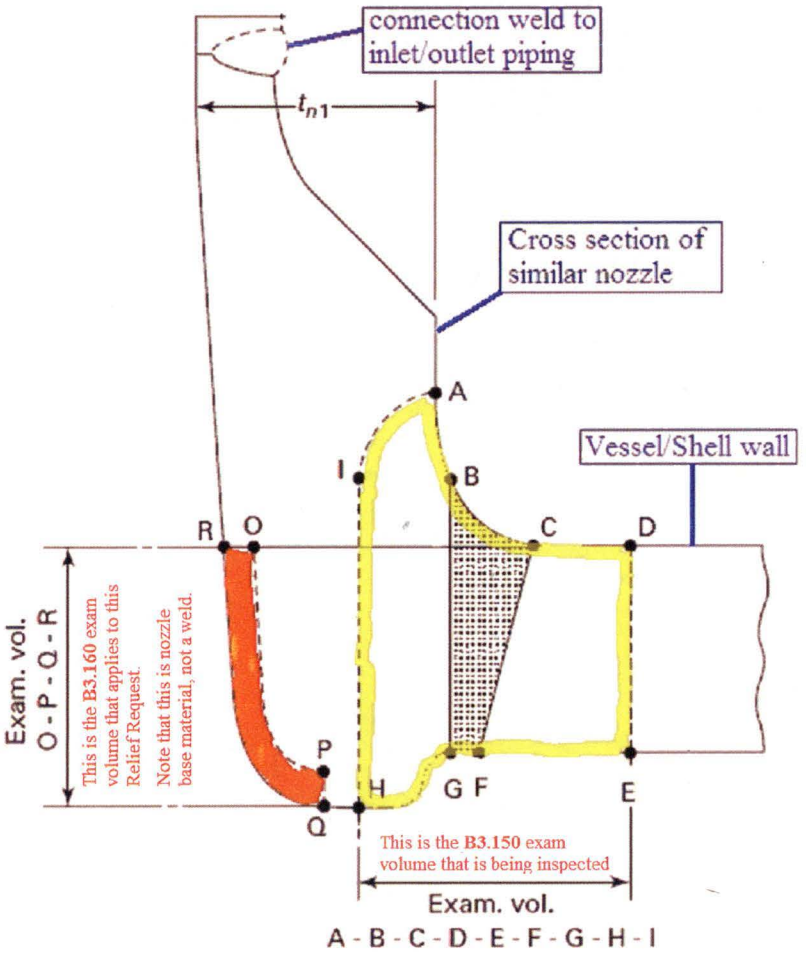
Sketch 1



(Response continued on next page)

(RAI 1 response continued)
The exam volumes for Category B-D, Items B3.150 and B3.160 are illustrated below (Reference ASME Section XI, Figure IWB-2500-7(a)). Relief Request 14-ON-001 only applies to the exam of Item B3.160, which is the inner radius section (base material). The B3.160 exam volume is adjacent to the B3.150 weld exam volume, but is not a weld exam. (see sketch OM-201.-3276.001, Detail "A" in the relief request.)

Sketch 2



RAI Question 2

Section 1 of the relief request states that "...Oconee Unit 1 has two Letdown Coolers 1A and 1B. Each component has typically four B3.160 welds..." Please confirm that the required examination is on the attachment welds of the nozzles, not the nozzles themselves, and that the required examination is on the inside radius of the welds.

It appears that the nozzles are forged and are attached to the side of a pipe as a branch connection. The welds are deposited on the inside and outside circumference of the nozzles that are attaching to the pipe. Is the staff's understanding correct? If not, please clarify.

Duke Energy's Response RAI #2:

As stated and illustrated in RAI 1 above, the Relief Request is limited to the B3.160 exam volume only, which is the nozzle "inner radius" section (i.e., base material). The nozzle-to-cooler weld is inspected as an Item B3.150 exam. Relief is not being requested for the B3.150 exams.

Referring to the nozzle inner radius section (Item B3.160) as locations rather than welds in the original request would have been clearer, but this relief request only applies to the inner radius of the nozzle base material illustrated in RAI #1 as exam volume O-P-Q-R.

RAI Question 3

Section 1 of the relief request states that, "The coolers also have operational ready spares of similar design that are rotated from spare to installed components as required by maintenance ..." What is the relevance of this sentence with respect to the required examination of the subject nozzle weld inside radius sections?

Duke Energy's Response RAI #3:

The discussion of the spare coolers in the Relief Request clarifies that the Relief will apply to Item B3.160 exam locations on both installed and spare letdown coolers.

RAI Question 4

Briefly describe the design and operation of the letdown coolers. Are the subject nozzles connected to the tube side or shell side of the letdown cooler? What fluids flow in the tube side and shell side of the coolers? What are the operating and design pressures and temperatures of the subject nozzles? If the fluid is not from the reactor coolant system, is the fluid being chemically treated to minimize corrosion?

Duke Energy's Response RAI #4:

Letdown is a continuous bleed of RCS inventory for the purpose of chemistry control and purification. The design and operating parameters of the letdown nozzles correspond with RCS conditions. Design parameters are 2500 psig and 600°F and operating parameters are essentially 2200 psig and 557°F. RCS letdown flows through the tube side of the letdown coolers and is reduced in temperature by a closed loop cooling water system on the shell side. The subject inspection volume is only exposed to RCS grade water.

RAI Question 5

Discuss how the letdown cooler and letdown system would be affected if the subject nozzles/welds fail completely (i.e., what are the consequences if the nozzle fails?). Section 4 of the relief request states that the nozzles are "set-on"; discuss the possibility of the nozzle ejecting from the pipe. Alternatively, discuss the bases for concluding that catastrophic failure of the nozzles/welds will not occur.

Duke Energy's Response RAI #5:

It is beyond the scope of this relief request to consider a complete nozzle failure. The relief is not associated with the installation or design requirements of the welds, the nozzles, or the cooler. The exam volume that cannot be inspected per B3.160 is a small volume of nozzle base material which is directly adjacent to the attachment weld exam volume (B3.150) which is being examined. If degradation is postulated to occur in the nozzle inner radius, it would have to migrate through the B3.150 examination volume to produce a though-wall defect. RCS leakage is closely monitored such that, if a through-wall flaw were to occur, Operations would quickly detect and identify the source, as required by Technical Specifications. Therefore, there is no basis for concluding that a catastrophic nozzle/weld failure could occur due to this relief request.

RAI Question 6

Confirm that the subject nozzles are made of 3-inch, stainless steel forging. What is the nozzle wall thickness? What is the material of the pipe that the nozzle is attached to? What are the nominal pipe size and wall thickness of the pipe to which the nozzle is attached?

Duke Energy's Response RAI #6:

The material description of the nozzle can be found in the Relief Request attachment, Sketch OM-201-3276 (table items 3 and 4). The nozzles are forged bar T-316L-stainless steel. The size and thickness of the nozzle is shown in detail A. The connecting process pipe is shown also on the Relief Request attachment, Sketch 1-N37804-2 (table item A and B) as 3 inch stainless steel pipe, schedule 160,specification SA182, grade 316L.

RAI Question 7

What is the weld filler material of the affected nozzles? Is the subject weld a full penetration weld, partial penetration weld, or fillet weld?

Duke Energy's Response RAI #7:

The Relief Request pertains to the Inner Nozzle Radius inspection (B3.160), which is nozzle base material and therefore weld filler material is not applicable to the items for which relief is requested. A typical weld detail is provided in the Relief Request (see attachment, OM-201-3276 detail A). See also reply to RAI question 6 above.

RAI Question 8

Has there been any leakage from or degradation of the subject nozzles/welds?

Duke Energy's Response RAI #8:

No leakage or degradation of this nozzle or nozzle weld has been identified in the past by the ASME Section XI, IWB, Category B-P, Code required pressure test program.