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October 25, 2007

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

Subject: Duke Power Company LLC d/b/a Duke Energy Carolinas,  
LLC (Duke)  
Catawba Nuclear Station, Unit 2  
Docket Number 50-414  
Request for Relief Number 07-GO-001  
Alloy 600 Pressurizer Weld Overlays - Submittal of  
Committed Information

On January 24, 2007, Duke submitted the subject request for relief regarding a proposed alternative approach to support application of full structural weld overlays on various pressurizer nozzle-to-safe end welds.

This letter contained the following two commitments:

1. The following information will be submitted to the NRC within fourteen days of completion of the final UT on each unit included in this relief request. Also included in the results will be a discussion of any repairs to the overlay material and/or base metal and the reason for the repair.
  - A listing of flaw indications detected
  - The disposition of all indications using the standards of ASME Section XI, IWB-3514-2 and/or IWB-3514-3 criteria and, if possible,
  - The type and nature of the indications
2. Prior to entry into Mode 4 from the Catawba Unit 2 fall 2007 refueling outage, a summary of the results of the stress analyses demonstrating that the preemptive full structural weld overlay will not hinder the components from performing their design function will be submitted to the NRC.

U.S. Nuclear Regulatory Commission

Page 2

October 25, 2007

The information required by Item 1 above is included in the attachment. The inspections were performed using Performance Demonstration Initiative (PDI) qualified ultrasonic inspection procedure and inspectors. The information required by Item 2 above will be submitted under separate correspondence prior to entry into Mode 4.

If you have any questions concerning this information, please contact L.J. Rudy at (803) 831-3084.

Very truly yours,

*JW Pitusa for*

James R. Morris

LJR/s

Attachment

U.S. Nuclear Regulatory Commission

Page 3

October 25, 2007

xc (with attachment):

W.D. Travers, Administrator, Region II  
U.S. Nuclear Regulatory Commission  
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A.T. Sabisch, NRC Senior Resident Inspector  
Catawba Nuclear Station

U.S. Nuclear Regulatory Commission

Page 4

October 25, 2007

xc (with attachment):

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L.J. Rudy

K.E. Nicholson

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Document Control File 801.01

RGC Date File

ELL-EC050

NCMPA-1

NCEMC

PMPA

SREC

Attachment

Summary of Ultrasonic Examinations of Preemptive Weld Overlays  
for Pressurizer Nozzle Locations Containing Alloy 600 Materials



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October 24, 2007  
SIR-07-339-NPS, Rev. 1

Mr. Tim McCurry  
Duke Energy Corporation  
Catawba Nuclear Station  
4800 Concord Road  
York, SC 29745  
Mail Code: CN06SW

**Subject:** Summary of Weld Overlay Ultrasonic Inspections for Pressurizer Surge, Spray and Safety/Relief Nozzle-to-Safe End Welds at Catawba Nuclear Station, Unit 2

**Reference:** Duke Energy Corporation, McGuire Nuclear Station Unit 1 and Catawba Nuclear Station Unit 2, Request for Alternative 07-GO-001, January 24, 2007

Dear Mr. McCurry:


The following attachment is transmitted in support of Duke Energy's response to commitments in the above-referenced request for alternative:

**Attachment:** A report summarizing the ultrasonic inspections performed on the Catawba Unit 2 weld overlays. The inspections were performed using SI's PDI qualified ultrasonic inspection procedure and inspectors. During the course of the ultrasonic examinations of the weld overlays on the Pressurizer Surge, Safety 2NC001 and Safety 2NC002 nozzles, there were no recordable indications detected. The examinations of the Pressurizer Safety 2NC003, Spray, and Power Operated Relief Valve (PORV) nozzles detected acceptable flaw indications which are described in this report.

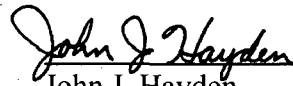
If you have any questions or comments regarding this summary, please contact one of the undersigned.

Prepared by:

Verified by:

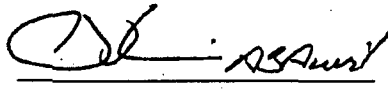
  
\_\_\_\_\_  
Michael S. Lashley  
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10/24/07  
Date

  
\_\_\_\_\_  
John J. Hayden  
Senior Consultant

10/24/07  
Date

Approved by:

  
\_\_\_\_\_  
Bud Auvil  
Associate

10/24/07  
Date

Attachments

cc: D. Llewellyn

M. Ruis

Project File: Duke-42Q-414

Attachment

Summary of Ultrasonic Examinations of Preemptive Weld Overlays  
for Pressurizer Nozzle Locations Containing Alloy 600 Materials



## **Ultrasonic Examination Procedure**

SI-UT-126, Revision 3, *Procedure for the Phased Array Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds*, was used during the examinations. This procedure, and the examiners who applied the procedure, are qualified through the PDI Program at the EPRI NDE Center.

### **Pressurizer Safety Nozzle 2NC001 Weld Overlay Examination**

Component Identification: Safety 2NC001 Nozzle, PZR Conn# 3, WSI FW# NW-4C

Examination Date: 10/07/07

Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld & Adjacent Base Material and Outer 25% Safe End-to-Elbow Weld & Adjacent Base Material

Axial Examination Angles: 0° through 83° - Circumferential Examination Angles: 0° through 66°

Examination Summary: The examination of the required volumes in the weld overlay and underlying material detected no flaw indications. The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact / coupling effectiveness during the examination.

### **Pressurizer Safety Nozzle 2NC002 Weld Overlay Examination**

Component Identification: Safety 2NC002 Nozzle, PZR Conn# 4A, WSI FW# NW-4B

Examination Date: 10/10/07

Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld & Adjacent Base Material and Outer 25% Safe End-to-Elbow Weld & Adjacent Base Material

Axial Examination Angles: 0° through 83° - Circumferential Examination Angles: 0° through 66°

Examination Summary: The examination of the required volumes in the weld overlay and underlying material detected no flaw indications. The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact / coupling effectiveness during the examination.

### **Pressurizer Safety Nozzle 2NC003 Weld Overlay Examination**

Component Identification: Safety 2NC003 Nozzle, PZR Conn# 4B, WSI FW# NW-4A

Examination Date: 10/10/07

Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld & Adjacent Base Material and Outer 25% Safe End-to-Elbow Weld & Adjacent Base Material

Axial Examination Angles: 0° through 83° - Circumferential Examination Angles: 0° through 66°

Examination Summary: The examination of the volume of the weld overlay material detected no flaw indications.

The examination of the underlying material of the dissimilar metal weld resulted with the detection of one flaw indication located within the inconel buttering of the nozzle. This indication is not crack-like and appears to be fabrication / material-related and not service induced. This indication is acceptable in accordance with ASME Section XI, Table IWB-3514-2.

The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact / coupling effectiveness during the examination.

### **Pressurizer Power Operated Relief Valve (PORV) Nozzle Weld Overlay Examination**

Component Identification: PORV Nozzle, PZR Conn# 4C, WSI FW# NW-3

Examination Date: 10/11/07

Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld & Adjacent Base Material and Outer 25% Safe End-to-Elbow Weld & Adjacent Base Material

Axial Examination Angles: 0° through 83° - Circumferential Examination Angles: 0° through 66°

Examination Summary: The examination of the volume of the weld overlay material resulted with the detection of three flaw indications. All three indications are not crack-like and appear to be fabrication / material-related. All three indications are acceptable in accordance with ASME Section XI, Table IWB-3514-2.

The examination of the underlying material of the dissimilar metal weld resulted with the detection of two flaw indications located within the ferritic nozzle. Both indications are not crack-like and appear to be fabrication / material-related and not service-induced. Both indications are acceptable in accordance with ASME Section XI, Table IWB-3514-1.

The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact / coupling effectiveness during the examination.

### **Pressurizer Spray Nozzle Weld Overlay Examination**

Component Identification: Spray Nozzle, PZR Conn# 2, WSI FW# NW-2

Examination Date: 10/10/07

Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld & Adjacent Base Material and Outer 25% Safe End-to-Elbow Weld & Adjacent Base Material

Axial Examination Angles: 0° through 83° - Circumferential Examination Angles: 0° through 66°

Examination Summary: The examination of the volume of the weld overlay material resulted with the detection of three flaw indications. All indications are not crack-like and appear to be fabrication / material-related. All indications are acceptable in accordance with ASME Section XI, Table IWB-3514-2.

The examination of the required volumes in the underlying material detected no flaw indications.

The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact / coupling effectiveness during the examination.

## **Pressurizer Surge Nozzle Weld Overlay Examination**

Component Identification: Pressurizer Surge Nozzle, PZR Conn# 1, WSI FW# NW-1

Examination Date: 10/03/07

Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld & Adjacent Base Material and Outer 25% Safe End-to-Pipe Weld & Adjacent Base Material

Axial Examination Angles: 0° through 83° – Circumferential Examination Angles: 0° through 70°

Examination Summary: The examination of the required volumes in the weld overlay and underlying material detected no flaw indications.

The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact / coupling effectiveness during the examination.