

June 14, 2007

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

SUBJECT: Duke Power Company LLC d/b/a  
Duke Energy Carolinas, LLC (Duke)  
McGuire Nuclear Station, Unit 1  
Docket Number 50-369  
Inspection Results Required Per First Revised NRC Order (EA-03-009)

By letter dated February 20, 2004, the NRC issued the First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors. The Order imposed requirements for pressurized water reactor licensees to inspect reactor pressure vessel heads and related penetration nozzles pending the revision of 10 CFR 50.55a and to submit a report detailing the inspection results within sixty (60) days after returning the unit to operation.

Duke Energy performed the required inspections in accordance with the First Revised NRC Order on McGuire Unit 1 during the End-of-Cycle 18 refueling outage. The inspections met the requirements of the Order with no deviations or evidence of leakage, cracking or wastage detected.

Attachment 1 provides the required inspection results.

Questions regarding the subject submittal should be directed to Ken Ashe, McGuire Regulatory Compliance at (704) 875-4535.



Gary R. Peterson

Attachment

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Gary R. Peterson, affirms that he is the person who subscribed his name to the foregoing statement, and that all the matters and facts set forth herein are true and correct to the best of his knowledge.

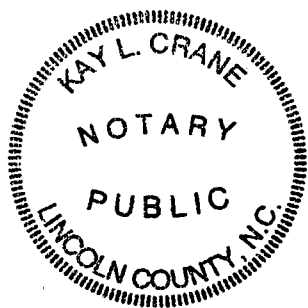
  
\_\_\_\_\_  
Gary R. Peterson, Vice President

Subscribed and sworn to me: June 14, 2007  
Date

  
\_\_\_\_\_  
Notary Public

My Commission Expires: 4-1-2012  
Date

SEAL



## **Attachment 1**

### **McGuire Nuclear Station, Unit 1 End-of-Cycle 18 Reactor Vessel Head Inspection Results Report**

During the McGuire Unit 1 End-of-Cycle 18 refueling outage, Duke Energy performed inspections of the reactor pressure vessel head in accordance with the First Revised NRC Order EA-03-009 dated February 20, 2004. The inspections met the requirements of the Order with no deviations or evidence of leakage, cracking or wastage detected.

The susceptibility of the Reactor Pressure Vessel (RPV) head to PWSCC-related degradation, as represented by a value of effective degradation years (EDY), was calculated. The calculated value determined that the McGuire Unit 1 RPV head is in the Low Susceptibility Category.

The Bare Metal Visual (BMV) inspection examined 100 percent of the RPV upper head surface including 360° around each RPV head penetration nozzle. The RPV head was found to be free of boron deposits with no evidence of wastage or pressure boundary leakage.

The volumetric Ultrasonic (UT) inspection examined each Control Rod Drive Mechanism (CRDM) penetration and the vent line penetration. UT of the RPV head penetration nozzle volume from 2 inches above the highest point of the root of the J-groove weld to 1-inch below the lowest point at the toe of the J-groove weld and including all RPV head penetration nozzle surfaces below the J-groove weld that have an operating stress level of 20 ksi tension and greater was performed. No crack-like indications were detected in the CRDM penetrations or in the vent line penetration.

UT leak path detection was used to assess if leakage has occurred into the annulus between the RPV head penetration nozzle and the RPV head low-alloy steel for all CRDM penetrations. No UT leak path signals were detected in the CRDM penetrations.

Because the vent line penetration was manufactured without a shrink fit, surface examination using dye penetrant was necessary to supplement the volumetric inspection of the vent line penetration. Surface examination included the surface of the vent line penetration J-groove weld and the bottom of the vent line penetration where UT coverage was limited due to geometry. No indications were detected during the surface examination of the vent line.