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August 27, 2009

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

SUBJECT: Duke Energy Carolinas, LLC (Duke)
Oconee Nuclear Station, Units 1, 2, and 3
Docket Numbers 50-269, 50-270, and 50-287
McGuire Nuclear Station, Units 1 and 2
Docket Numbers 50-369 and 50-370
Catawba Nuclear Station, Units 1 and 2
Docket Numbers 50-413 and 50-414
Relief Request 09-GO-001 Request for Additional Information

On February 24, 2009 Duke submitted Relief Request 09-GO-001 pursuant to 10 CFR 50.55a(a)(3)(i), requesting NRC approval to use an alternative to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI inservice inspection (ISI) requirements for certain buried components of the Condenser Circulating Water System at Oconee Nuclear Station and Nuclear Service Water Systems at McGuire and Catawba Nuclear Stations in lieu of system pressure tests required by ASME Section XI, IWA-5244(b).

On July 28, 2009, the NRC Staff electronically requested additional information regarding this request. This additional information, along with the Duke response, is attached.

If you have any questions or require additional information, please contact P. T. Vu at (980) 875-4302.

Sincerely,

Bruce H. Hamilton

Attachment

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Attachment

Relief Request 09-GO-001

Response to NRC Request for Additional Information

1. In lieu of performing the Code-required system pressure test for buried components, the licensee proposes to conduct a test that confirms that flow during operation is not impaired (Unimpaired Flow Test). The staff requests that such test for buried components be proceduralized with following information and submitted for staff review:

- (a) Test frequency
- (b) Source of pressurization
- (c) Flow measurement
- (d) Acceptance criteria
- (e) Corrective action program

Response:

- A. For Oconee Nuclear Station, the unimpaired flow tests (for the piping sections identified in Table 1 of the relief request) are conducted in accordance with the following procedures:

- PT/1-2/A/0251/073 "LPSW System Flow Data Verification"
- PT/3/A/0251/073 "LPSW System Flow Data Verification"

These procedures are performed to confirm that the open raw water system for Oconee [i.e., LPSW (Low Pressure Service Water) and CCW (Condenser Circulating Water) systems] is capable of supplying cooling water to the Low Pressure Service Water (LPSW) pumps (Nuclear Safety Related). The piping covered by this relief request also supplies cooling water to the following components which are important to safety, but are considered non-nuclear safety related:

- High Pressure Service Water (HPSW) Pumps
- Chiller Condenser Service Water Pumps (associated with Control Room Ventilation Chillers)
- RCW (Recirculating Cooling Water) Coolers A, B, C, D
- CCW Booster Pumps (which supply cooling to Unit 3 RCW Coolers)

Procedures PT/1-2/A/0251/073 and PT/3/A/0251/073 are performed at power (with major loads that can induce higher than normal load to the system maximized) on a scheduled frequency (currently every 12 months). In order to satisfy the test frequency specified in IWD-2500, Table IWD-2500-1, Category D-B, Item D2.10, these procedures must be conducted at least once each inspection period. Because the flow acceptance criteria for each safety related component is not currently documented in these procedures, a corrective action has been entered into Duke's Corrective Action Program to revise these procedures to require Engineering to evaluate the recorded data

and compare the results to data recorded during previous tests. If any significant differences from previous test data are noted, this information shall be entered into Duke's Corrective Action Program and the Operations Shift Manager shall be notified.

The bases for testing conducted in accordance with these procedures, as well as the additional procedures listed later in this response, are documented in the Oconee responses dated 1/26/90, 5/31/90, 9/1/94 and 4/4/95 to Generic Letter (GL) 89-13 "Service Water System Problems Affecting Safety-Related Equipment."

The CCW pumps provide the source of pressurization for these tests. During testing, the required flows to individual components are recorded using installed calibrated system process flow instruments.

Please note that the following additional procedures also help to confirm the adequacy of flow through all or portions of the piping included in this request and are conducted periodically as indicated. However, these procedures are not being credited towards satisfying the alternative unimpaired flow test specified in this relief request.

- PT/1/A/0251/023 "LPSW System Flow Test" (Unit 1)
- PT/2/A/0251/023 "LPSW System Flow Test" (Unit 2)
- PT/3/A/0251/023 "LPSW System Flow Test" (Unit 3)

Each of the above procedures is currently conducted at least once every 5 years.

- PT/1/A/0251/072 "LPSW System Flow Balance Verification" (Unit 1)
- PT/2/A/0251/072 "LPSW System Flow Balance Verification" (Unit 2)
- PT/3/A/0251/072 "LPSW System Flow Balance Verification" (Unit 3)

Each of the above procedures is currently conducted at least once every refueling outage, except when PT/1/A/0251/023 (for Unit 1), PT/2/A/0251/023 (for Unit 2), or PT/3/A/0251/023 (for Unit 3) is conducted during a refueling outage.

- OP/1/A/1104/012 "CCW System"

This procedure is conducted during plant operation.

The bases for the testing frequencies for these additional procedures are found in the Duke Power responses to NRC GL 89-13. Flow testing conducted in accordance with Duke's responses to GL 89-13 is performed to

ensure that event mitigation components are not fouled or clogged and that they will be able to operate at their design basis flow rates.

B. For McGuire Nuclear Station, the unimpaired flow tests (for the piping sections identified in Table 2 of the relief request) are conducted in accordance with the following procedures:

- PT/1/A/4403/007, "RN Train 1A Flow Balance"
- PT/1/A/4403/008, "RN Train 1B Flow Balance"
- PT/2/A/4403/007, "RN Train 2A Flow Balance"
- PT/2/A/4403/008, "RN Train 2B Flow Balance"

These procedures are performed to confirm that McGuire's RN (Nuclear Service Water) system is capable of supplying cooling water to various nuclear safety-related loads. The RN flow balance test alignment mimics the design basis accident (LOCA) system alignment in that flow is initiated to all of the required loads simultaneously. During this test alignment, all of the individual component flows are recorded, the total system flow is recorded and the opposite unit system flow is recorded. Since both McGuire units share common suction and discharge piping, the same train on the opposite unit being tested is required to be operating at RHR cool down flows during the flow balance. The recorded test flows are verified against the flow acceptance criteria.

Each RN train provides cooling water to the following:

- KC (Component Cooling Water) Heat Exchanger
- NS (Containment Spray) Heat Exchanger
- KD (Diesel Generator) Heat Exchanger
- VC (Control Room Ventilation) Chiller
- KF (Spent Fuel Pool) Pump Motor Cooler
- NS (Containment Spray) Pump Motor Cooler
- ND (Residual Heat Removal) Pump Motor Cooler
- NV (Chemical & Volume Control) Pump Oil Cooler
- NV (Chemical & Volume Control) Pump Motor Cooler
- NI (Safety Injection) Pump Oil Cooler
- NI (Safety Injection) Pump Motor Cooler
- CA (Auxiliary Feedwater) Pump Motor Cooler
- KC (Component Cooling Water) Pumps Motor Coolers
- RN (Nuclear Service Water) Pump Motor Cooler
- Assured Supply to CA (Auxiliary Feedwater)

The above procedures are currently performed semi-annually. The basis for the testing as stated in the McGuire response dated 1/26/90 to NRC GL 89-13 is "Flow testing (flow balance testing) is performed as part of our periodic test program at the design basis flow rates to ensure that all components are not fouled or clogged and that they will be able to receive their design basis flow rates simultaneously." The original test frequency was annually, but was changed to semi-annually in 2003 due to engineering trending of test results. In order to satisfy the test frequency specified in IWD-2500, Table IWD-2500-1, Category D-B, Item D2.10, these procedures must be conducted at least once each inspection period.

The RN pumps provide the source of pressurization for these tests. Flow rates documented in these procedures are obtained using installed calibrated system process flow instruments or calibrated test instruments that are installed as part of the flow balance test.

The flow acceptance criteria for each safety related RN cooled component is documented in calculation #MCC-1223.24-00-0096 "RN System Flow Balance Acceptance Criteria."

If the RN system flow measured during the performance of these procedures is less than the specified acceptance criteria, the procedure requires notification to the SRO and System Engineer that the RN train is inoperable. This condition would then be entered into Duke's Corrective Action Program.

C. For Catawba Nuclear Station, the unimpaired flow tests (for the piping sections identified in Table 3 of the relief request) are conducted in accordance with the following procedures:

- PT/0/A/4400/008 A, "RN Flow Balance Train A"
- PT/0/A/4400/008 B, "RN Flow Balance Train B"

These procedures are performed to confirm that Catawba's RN (Nuclear Service Water) system is capable of supplying cooling water to various nuclear safety-related loads. During the RN flow balance test, all RN system loads required to meet a design basis accident (LOCA) are aligned to their required positions. During this test alignment, all of the individual component flows are recorded, the total system flow is recorded and the opposite unit system flow is recorded. Since both Catawba units share common suction and discharge piping, the same train on the opposite unit being tested is required to be operating at RHR cool down flows during the flow balance. The recorded test flows are verified against the flow acceptance criteria.

Each RN train provides cooling or makeup water to the following:

- KC (Component Cooling Water) Heat Exchanger
- NS (Containment Spray) Heat Exchanger
- KD (Diesel Generator) Heat Exchanger
- VC (Control Room Ventilation) Chiller
- Assured Supply to CA (Auxiliary Feedwater)

The above procedures are currently performed semi-annually. The basis for the testing as stated in the Catawba response dated 1/26/90 to NRC GL 89-13 is "Flow testing (flow balance testing) is performed as part of our periodic test program at the design basis flow rates to ensure that all components are not fouled or clogged and that they will be able to receive their design basis flow rates simultaneously." In order to satisfy the test frequency specified in IWD-2500, Table IWD-2500-1, Category D-B, Item D2.10, these procedures must be conducted at least once each inspection period.

The RN pumps provide the source of pressurization for these tests. Flow rates documented in these procedures are obtained using installed calibrated system process flow instruments or calibrated test instruments that are installed as part of the flow balance test.

The flow acceptance criteria for each safety related RN cooled component is documented in calculation #CNC-1223.24-00-0011 "Nuclear Service Water System Test Acceptance Criteria."

If the RN system flow measured during the performance of these procedures is less than the specified acceptance criteria, the procedure requires notification to the SRO and System Engineer that the RN train is inoperable. This condition would then be entered into Duke's Corrective Action Program.

2. For buried piping supplying cooling water to safety-related components such as the Containment Fan Coolers, Emergency Diesels etc., is there any provision for flow measurement to verify flow to all safety-related loads? If so, is it being used as an Unimpaired Flow Test?

Response: Please see the response to Question 1.

3. Is there any buried piping from tanks in the yard such as the Condensate Storage Tank, Refueling Water Storage Tank etc. (other than Condenser Circulating Water system and Service Water system in subject relief request No. 09-GO-001) which may be covered under the scope of this relief request?

Response: No. The only buried piping included in this request is the RN System and CCW System Class 3 buried piping bounded by the valves identified in Tables 1, 2, and 3.