UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OF THE SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PLAN

REQUEST FOR RELIEF NO. 98-03

DUKE ENERGY CORPORATION

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

Title 10 of the Code of Federal Regulations (10 CFR), Section 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves be performed in accordance with the ASME Boiler and Pressure Vessel Code (ASME Code) Section XI, and applicable addenda, except where relief has been requested and granted, or proposed alternatives have been authorized by the Commission, pursuant to 10 CFR 50.55a(f)(6)(i), Section (a)(3)(i), or Section (a)(3)(ii). In order to obtain authorization or relief, Duke Energy Corporation (the licensee) must demonstrate that: (1) conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to the Code in Positions 1, 2, 6, 7, 9, and 10, provided the licensee follows the guidance delineated in the applicable position. When an alternative is proposed, which is in accordance with GL 89-04 guidance and is documented in the IST program, no further evaluation is required; however, implementation of the alternative is subject to NRC inspection.

By letter dated September 14, 1998, the licensee submitted Relief Request 98-03 for Catawba Nuclear Station, Units 1 and 2, second 10-year interval program for IST of pumps and valves. The second 10-year interval began on December 29, 1995, and will end on December 28, 2005. The IST program is based on the requirements of the 1989 Edition, Section XI of the ASME Code, which by reference incorporates Operations and Maintenance (OM) Standard Part 1 (OM-1) "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices."

Enclosure

2.0 DISCUSSION AND EVALUATION

The licensee requests relief from the testing requirements of OM-1 Paragraphs 7.3.2.2 and 8.1.3.8 for four relief valves in the diesel generator (DG) fuel oil system. Specifically, relief is requested from the requirement to conduct set pressure testing and the requirement for a minimum of two consecutive openings within the Code tolerance. The licensee proposes to verify proper functioning of these component subassemblies by the successful completion of monthly DG performance testing.

The licensee states:

> Catawba's current method for set pressure determination for relief valves is to remove the valves and perform bench testing. Removal for testing is not a Code requirement, however this is the method Catawba relies on for setpoint determination. An alternate method is the application of "skid mounted" criteria as discussed in Section 3.4 of NUREG 1482. By this method, successful demonstration of valve function is performed each month during the diesel generator operability test.
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> Verification of the subject valve functions (pressure regulating and overpressure protection) as part of the diesel generator performance test will provide complete assurance of the valves' ability to perform as designed. The valves will be tested under the actual conditions for which they are expected to operate; hence, their system functions can be directly verified. No adverse impact upon public health and safety will be generated from a radiological or other standpoint.

The licensee proposes (as stated):

> Diesel generator fuel oil pressure will be verified monthly during the diesel generator performance test. The monthly test, conducted according to procedures PT/1&2/A/4350/02A&B, D/G Operability Test, for Units 1 and 2 and diesel generators A and B, respectively, verifies both the pressure regulating and overpressure protection functions of the subject valves. These procedures perform the monthly diesel generator run during which fuel oil recirculation header pressure is monitored. Procedure MP/0/A/7700/21, Diesel Engine Fuel Oil Back Pressure Relief Valve Corrective Maintenance, is performed after outage diesel generator maintenance to adjust the subject valves to the required 40 psig [per square inch gauge] backpressure.

The valves for which the licensee requests relief are labeled 1FD34, 2FD34, 1FD74, and 2FD74. They are the DG engines' return header relief valves. They perform a dual function of regulating fuel pressure to the DG engine and providing overpressure protection of the fuel oil return line from the main circulation header. Each valve is physically located above its corresponding DG fuel oil day tank. The valves are set to regulate fuel oil pressure at a maximum value of 40 psig. With the DG running, the valve relief pressure setpoint maintains a

backpressure of 40 psig on the main circulation header. The valve will lift to relieve pressure in excess of 40 psig, thereby, fulfilling both its regulation and overpressure protection functions.

The Code requires that tests of these valves contain a visual examination, seat tightness determination, set pressure determination, determination of compliance with seat tightness criteria, and verification of the integrity of the balancing device on balanced valves (OM-1, Paragraph 7.3.2.2). Due to the design of the valves, the only applicable requirement is set pressure determination. Paragraph 8.1.3.8 of OM-1 requires that the number of valve openings at set pressure be sufficient to demonstrate satisfactory repeatability with a minimum of two consecutive openings within Code tolerance. Instead of performing the Code-required testing, the licensee proposes to demonstrate proper functioning of these valves by the successful performance of the DG during monthly testing.

Often, valves procured as part of larger component subassemblies are not designed to meet the test requirements intended for individual ASME Code Class 1, 2, and 3 components. This is the case with these relief valves. Because of this, conformance with the Code-required testing method is impractical. Imposition of Code requirements would compel the licensee to redesign the diesel generator fuel oil system. This would result in an undue burden upon the licensee.

Section 3.4 of NUREG-1482 addresses the issue of skid-mounted components. The staff has determined that testing of the major component is an acceptable means for verifying the operational readiness of the skid-mounted and component subassemblies if the licensee documents this approach in the IST Program. The licensee's proposed alternative is consistent with the staff's guidance in NUREG-1482 and provides a reasonable assurance of operational readiness.

3.0 CONCLUSION

The requirements of OM-1 Paragraphs 7.3.2.2 and 8.1.3.8 on the subject valves are impractical as previously stated. The staff, therefore, grants the requested relief and imposes the alternative requirement pursuant to 10 CFR 50.55a(f)(6)(i). The staff determines that the relief and alternative testing are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest giving due consideration to the burden on the licensee if the requirements were imposed on the facility.

Principal Contributor: M. Kotzalas

Date: December 8, 1998