

August 23, 2002

Mr. H. B. Barron
Vice President, McGuire Site
Duke Energy Corporation
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 RE: ISSUANCE OF
AMENDMENTS REGARDING RESPONSE TIME TESTING REQUIREMENTS
(TAC NOS. MB4676 AND MB4677)

Dear Mr. Barron:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 206 to Facility Operating License NPF-9 and Amendment No. 187 to Facility Operating License NPF-17 for the McGuire Nuclear Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated March 26, 2002, as supplemented by letter dated June 3, 2002.

The amendments revise the TS to eliminate response time testing requirements for selected sensors and specified instrumentation loops for the Engineered Safety Features System and the Reactor Trip System.

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Robert E. Martin, Senior Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-369 and 50-370

Enclosures:

1. Amendment No. 206 to NPF-9
2. Amendment No. 187 to NPF-17
3. Safety Evaluation

cc w/encl: See next page

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DUKE ENERGY CORPORATION

DOCKET NO. 50-369

McGUIRE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 206
License No. NPF-9

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the McGuire Nuclear Station, Unit 1 (the facility), Facility Operating License No. NPF-9 filed by the Duke Energy Corporation (licensee) dated March 26, 2002, as supplemented by letter dated June 3, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-9 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 206, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John A. Nakoski, Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: August 23, 2002

DUKE ENERGY CORPORATION

DOCKET NO. 50-370

McGUIRE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 187
License No. NPF-17

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the McGuire Nuclear Station, Unit 2 (the facility), Facility Operating License No. NPF-17 filed by the Duke Energy Corporation (licensee) dated March 26, 2002, as supplemented by letter dated June 3, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-17 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 187, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John A. Nakoski, Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: August 23, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 206

FACILITY OPERATING LICENSE NO. NPF-9

DOCKET NO. 50-369

ATTACHMENT TO LICENSE AMENDMENT NO. 187

FACILITY OPERATING LICENSE NO. NPF-17

DOCKET NO. 50-370

Replace the following pages of the Appendix A Technical Specifications and associated Bases with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

| <u>Remove</u> | <u>Insert</u> |
|---------------|---------------|
| 1.1-3 | 1.1-3 |
| 1.1-5 | 1.1-5 |
| 1.1-6 | 1.1-6 |
| B3.3.1-48 | B3.3.1-48 |
| B3.3.1-49 | B3.3.1-49 |
| --- | B3.3.1-50 |
| B3.3.2-41 | B3.3.2-41 |
| B3.3.2-42 | B3.3.2-42 |
| --- | B3.3.2-43 |

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 206 TO FACILITY OPERATING LICENSE NPF-9
AND AMENDMENT NO. 187 TO FACILITY OPERATING LICENSE NPF-17
REVISION TO TECHNICAL SPECIFICATIONS ASSOCIATED WITH THE
ELIMINATION OF PERIODIC PRESSURE SENSOR
AND PROTECTON CHANNEL RESPONSE TIME TESTS FOR
DUKE ENERGY CORPORATION
MCGUIRE NUCLEAR STATION, UNITS 1 AND 2
DOCKET NOS. 50-369 AND 50-370

1.0 INTRODUCTION

By letter dated March 26, 2002, as supplemented by letter dated June 3, 2002, Duke Energy Corporation, et al. (DEC, the licensee), submitted a request for changes to the McGuire Nuclear Station, Units 1 and 2 (McGuire), Technical Specifications (TS). The proposed TS change revises the TS definition for "Engineered Safety Features (ESF) Response Time" and "Reactor Trip System (RTS) Response Time" to provide for the verification of response time for selected instruments provided that the instruments and methodology for verification have been previously reviewed and approved by the NRC. The supplement dated June 3, 2002, provided clarifying information that did not change the scope of the March 26, 2002, application nor the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

The Westinghouse Owner's Group (WOG) performed two analyses to assess the impact of elimination of RTT for certain instruments and instrument loops. These analyses also discussed alternate test methodologies that would show the instrumentation was functioning correctly. The first of these analyses was included in WOG Licensing Topical Report WCAP-13632-P, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," dated August 1995, that was approved by the staff's safety evaluation report (SER) dated September 5, 1995. The second report, WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," dated December 1995, was approved by the staff's SER dated October 6, 1998. Each of these SERs stipulated certain conditions that individual plant licensees must meet when implementing the guidelines in WCAP-13632 and WCAP-14036 on a plant-specific basis.

3.0 EVALUATION

This evaluation consists of two parts. The first part covers the evaluation of the response time testing eliminations, and of the wording of the TS changes, and the second part covers the evaluation of plant-specific information required by the SE's for WCAP-13632 and WCAP-14036.

3.1 RTT Elimination Changes

There are two types of RTT elimination changes contained within the McGuire request. The first is to eliminate periodic pressure sensor RTT in accordance with WCAP-13632. The second change is to eliminate protective channel RTT for the RTS and ESF in accordance with WCAP-14036.

For the first change, the licensee proposes to no longer perform RTT on the following sensors:

- Barton 386A
- Barton 763
- Barton 764
- Rosemount 1153GD9

Three of the sensor types, Barton models 763 and 764, and Rosemount model 1153GD9 are listed in the staff SER dated September 5, 1995, that approved WCAP-13632. Since the staff has already reviewed the generic analysis, no further review of these sensor types is required, and the licensee needs only to meet the conditions for plant-specific amendments.

The other sensor type, the Barton 386A, was not submitted as a part of WCAP-13632 and was, therefore, not approved in the staff's SER. In attachment 7 of the submittal dated the March 26, 2002, the licensee provided justification for this sensor. In this attachment, the licensee provided an analysis of the differences between the model 386A and the approved model 764. This analysis covered both the differential pressure unit and the electronic signal processing circuit. The licensee also provided a letter from ITT Barton Instrument Company confirming the licensee's analysis. The analysis stated:

According to the manufacturer, the only difference between the ITT Barton Model 386A and Model 764 differential pressure Electronic transmitters are in the manufacturing methodology. The Model 386A is temperature compensated for continuous operation up to +150° F. The Model 764 is temperature compensated for continuous operation up to +320° F. There are no material differences between the two models.

The staff therefore accepts the licensee's conclusion that the failure modes and effects analysis (FMEA) performed in EPRI NP-7243, "Investigation of Response Time Testing Requirements," on the Barton model 764 is applicable to the model 386A and, therefore, model 386A is eligible for RTT elimination.

For the second change, the licensee proposed elimination of RTT for the RTS and ESF and instead will depend upon calibration and other periodic testing, as described in WCAP-14036, in order to determine the proper operation and functioning of the above systems' instrumentation.

In those cases where the TS requires the licensee to verify that a protective system can meet its protective function in a prescribed time, a bounding response time will be added to those portions of the protective system actually tested for response time in order to determine the total system response time. The requirement to actually measure the response times would be eliminated, and instead, the response times will be verified by summing allocated times for sensors, the process protection system, the nuclear instrumentation system (NIS), and the logic system. These allocated values will be added to the measured times for the actuated devices and compared to the overall analysis limits.

The actual TS change is to revise the TS definition for "Engineered Safety Feature (ESF) Response Time" and "Reactor Trip System (RTS) Response Time" to provide for verification of response time for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC. The TS requirements for response time verification will continue to be implemented by TS Surveillance Requirements 3.3.1.15 and 3.3.2.8.

3.2 Technical Specification Changes

The specific sections of the McGuire TS to be changed are as follows:

3.2.1 Section 1.1, Definitions

ESF Response Time, Page 1.1-3

Proposed Change: Add a sentence to the definition. The definition currently reads:

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

With the addition of the proposed sentence, the definition will state:

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

RTS Response Time, Page 1.1-5

Proposed Change: Add a sentence to the definition. The definition currently reads:

The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

With the addition of the proposed sentence, the definition will state:

The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

Evaluation: Addition of these sentences will allow the licensee to verify the component response times rather than performing an actual RTT. These changes are in accordance with the WCAP-14036-P, Revision 1, as approved by the staff's SER and are, therefore, acceptable to the staff.

3.2.2 TS Bases

Basis Section 3.3.1, RPS Instrumentation, Surveillance Requirements, Page B 3.3.1-48

Proposed Change: Add two paragraphs after the paragraph ending, "The response time may be measured by a series of overlapping tests such that the entire response time is measured," and before the paragraph starting "As appropriate, each channel's response must be verified every 18 months on a STAGGERED TEST BASIS." These paragraphs will read:

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements" provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be either demonstrated by test, or their equivalency to those listed in WCAP-13632-P-A, Revision 2. Any demonstration of equivalency must have been determined to be acceptable by NRC staff review.

WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" provides the basis and methodology for using allocated signal processing

and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

Basis Section B 3.3.1, RTS Instrumentation, Reference, Page B 3.3.1-50

Proposed Change: Add reference 8 and 9, to read:

8. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements" Sep., 1995.
9. WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" Oct., 1998.

Basis Section B 3.3.2, ESFAS Instrumentation, Surveillance Requirements, Page B 3.3.2-41

Proposed Change: Add two paragraphs at the top of the page, before the paragraph starting "ESF RESPONSE TIME tests are conducted on an 18 months STAGGERED TEST BASIS." These paragraphs will read:

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements" provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be either demonstrated by test or their equivalency to those listed in WCAP-13632-P-A, Revision 2. Any demonstration of equivalency must have been determined to be acceptable by NRC staff review.

WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

Basis Section B 3.3.2, ESFAS Instrumentation, Reference, Page B 3.3.2-43

Proposed Change: Add reference 8 and 9, to read:

8. WCAP-13632-P-A, Revision 2, "Elimination of-Pressure Sensor Response Time Testing Requirements" Sep., 1995.
9. WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" Oct., 1998.

Evaluation: These changes describe the rationale which allows the licensee to verify the component response times by using approved methodology instead of performing an actual RTT. These changes are in accordance with WCAP-14036-P, Revision 1, as approved by the staff's SER and are, therefore, acceptable to the staff.

3.3 Verification of Plant-Specific Conditions from WCAP-13632

The staff stipulated several conditions in the generic SER approving WCAP-13632 that must be met by the individual licensee referencing the topical report before the guidance could be implemented in plant-specific TS change proposals. From the licensee's submittal, the staff verified that the licensee has met or will meet the applicable conditions as follows:

- a. Condition: Perform a hydraulic RTT prior to installation of a new transmitter/switch or following refurbishment of the transmitter/switch (e.g., sensor cell or variable damping components) to determine an initial sensor-specific response time value.

Licensee's Response: The applicable plant surveillance and maintenance procedures will include revisions which stipulate that pressure sensor response times must be verified by performance of an appropriate response time test prior to placing a sensor in operational service and reverified following maintenance that may adversely affect sensor response time. Required procedure changes will be completed prior to implementation of the verification option for that application.

Evaluation: This response fulfills the condition in the staff's generic SER and is, therefore, acceptable to the staff.

- b. Condition: For transmitters and switches that use capillary tubes, perform a RTT after initial installation and after any maintenance or modification activity that could damage the capillary tubes.

Licensee's Response: Currently, McGuire does not have any sensors which utilize capillary tubing. Should McGuire install pressure sensors incorporating capillary tubing at some point in the future, administrative controls would be established requiring response time testing after initial installation and after any maintenance or modification activity that could damage the capillary system. These administrative controls will be established prior to the installation of a pressure sensor utilizing a capillary system.

Evaluation: Since McGuire does not use capillary tubing, this condition is not applicable.

- c. Condition: If variable damping is used, implement a method to assure that the potentiometer is at the required setting and cannot be inadvertently changed or perform hydraulic RTT of the sensor following each calibration.

Licensee Response: McGuire does not currently have any sensors that utilize variable damping. Should McGuire install these devices at some point in the future, administrative controls would be established requiring the performance of hydraulic response time testing following each calibration or verification that the potentiometer was at the required setting and could not be inadvertently changed on pressure sensors utilizing variable damping. These administrative controls will be established prior to the installation of a pressure sensor utilizing variable damping.

Evaluation: Since McGuire does not use sensors that uses variable damping, this condition is not applicable.

- d. Condition: Perform periodic drift monitoring of all Model 1151, 1152, 1153, and 1154 Rosemount pressure and differential pressure transmitters, for which RTT elimination is proposed, in accordance with the guidance contained in Rosemount Technical Bulletin No. 4 and continue to remain in full compliance with any prior commitments to Bulletin 90-01, Supplement 1. As an alternative to performing periodic drift monitoring of Rosemount transmitters, licensees may complete the following actions: (1) ensure that operators and technicians are aware of the Rosemount transmitter loss of fill-oil issue and make provisions to ensure that technicians monitor for sensor response time degradation during the performance of calibrations and functional tests of these transmitters, and (2) review and revise surveillance testing procedures, if necessary, to ensure that calibrations are being performed using equipment designed to provide a step function or fast ramp in the process variable and that calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the transmitter under test, thus allowing, with reasonable assurance, the recognition of significant response time degradation.

Licensee Response: McGuire's response to NRC Bulletin 90-01, Supplement 1, was reviewed and found acceptable by the NRC as documented in a letter dated December 16, 1994. All affected Rosemount transmitters at McGuire were either manufactured after July 11, 1989, or have had periodic drift monitoring performed in accordance with Rosemount Technical Bulletin No. 4. Implementation of these proposed TS amendments will not change McGuire's response to this NRC Bulletin.

Evaluation: Since McGuire either does not have Rosemount transmitters with serial numbers less than 500,000 or has had periodic drift monitoring performed in accordance with Rosemount Technical Bulletin No. 4, no change is necessary as a result of RTT elimination, and no further analysis is required.

The staff confirmed that the licensee submittals referenced in its response are consistent with the above condition. This response fulfills the condition in the staff's generic SE for WCAP-13632 and is, therefore, acceptable to the staff.

3.4 Verification of Plant-Specific Conditions from WCAP-14036

The staff SE approving WCAP-14036 also had a requirement that must be met by the individual licensee referencing the topical report before the guidance could be implemented in plant-specific TS change proposals. The requirement is as follows:

Condition: Since the performance of RTT is a TS requirement, licensees referencing WCAP-14036 must submit a TS amendment to eliminate that requirement for the identified equipment. In that amendment request, the licensee must verify that the FMEA performed by the WOG is applicable to the equipment actually installed in the licensee's facility, and that the analysis is valid for the versions of the boards used in the protection system.

Licensee Response: In the March 26, 2002, submittal by the licensee, in Attachment 3, "Description of Proposed Changes and Technical Justification," the licensee stated:

The Failure Modes and Effects Analysis (FEMA) contained in WCAP-14036-P-A, Revision 1, is applicable to the equipment installed at McGuire Units 1 and 2. The analysis is valid for the installed versions of boards and relays.

Evaluation: This response fulfills the condition in the staff's generic SER and is, therefore, acceptable to the staff.

In addition to the above conditions, when a plant accident analysis determines that a mitigation system is required to actuate in a certain response time, the testing for that response time is generally required by TS. The licensee's amendment request will eliminate some of the testing previously required. The two topical reports mentioned above provide adequate justification that calibrations and other surveillance testing will prove that the instruments are functioning properly. When the testing is not done to a portion of the instrument loop, but the TS requires the verification of assumptions made in the accident analysis, some assumed or bounding value for the untested portion of the loop must be added to the tested portion to arrive at a total system response time. WCAP-14036 included those maximum or bounding response times for the equipment that was analyzed in that report. WCAP-13632 did not have similar bounding response times approved for the sensors that were addressed in that topical report. The bounding response time values were provided in Tables 1 and 2 of the licensee's letter dated March 26, 2002.

The staff has reviewed these values and the method by which the values were obtained, and has found them acceptable.

4.0 CONCLUSION

Based upon the above review, the NRC staff concludes that the licensee has implemented the provisions of the generic SER for RTT elimination and has satisfied the applicable plant-specific conditions in accordance with the approved reports, WCAP-13632 and WCAP-14036. Therefore, the staff concludes that the proposed McGuire TS modifications for selected instrument RTT elimination are acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the North Carolina State official was notified of the proposed issuance of the amendments. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (67 FR 21286). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: H. Garg, EEIB/DE

Date: August 23, 2002

Table 1 - Reactor Trip (Note 14)

| Function | Sensor Notes 2 & 3 | Sensor Time | 7300 / NIS String Note 4 | 7300 Time Note 11 | SSPS Relays Note 5 | SSPS Time Note 5 | Rx T Tim Not |
|---|-------------------------------------|-------------|------------------------------------|--------------------|--------------------|------------------|--------------|
| Pzr Press - Low | ITT Barton 763 | 0.50 s | NLP + NAL | 0.1 s | Input | 0.02s | 0.3 |
| Pzr Press - High | ITT Barton 763 | 0.50 s | NLP + NAL | 0.1 s | Input | 0.02 s | 0.3 |
| S/G Level - Low Low | ITT Barton 764 | 0.50 s | NLP + NAL | 0.1 s | Input | 0.02 s | 0.3 |
| RCS Flow - Low | ITT Barton 764 | 0.50 s | NLP + NAL | 0.1 s | Input | 0.02 s | 0.3 |
| OPDT (Vary Tavg) | RDF 21232 | Note I | NRA + NSA + NSA + NSA + NSA + NAL | 0.4 s | Input | 0.02 s | 0.3 |
| OPDT (Vary Delta T) | RDF 21232 | Note I | NRA + NSA + NSA + NAL | 0.4 s | Input | 0.02s | 0.3 |
| OPDT (Vary Flux) | Detectors Exempt | Note I | NIS (1 ms) + NSA + NCH + NSA +NAT | 0.401 s Note 12 | Input | 0.02 s | 0.3 |
| OTDT (Vary Tavg) | RDF 21232 | Note I | NRA + NSA + NSA + NSA + NAL | 0.4 s | Input | 0.02 s | 0.3 |
| OTDT (Vary Delta T) | RDF 21232 | Note I | NRA + NSA + NSA + NAL | 0.4 s | Input | 0.02 s | 0.3 |
| OTDT (Vary Press) | ITT Barton 763 | 0.50 s | NLS + NSA + NSA + NAL | 0.4 s | Input | 0.02 s | 0.3 |
| OTDT (Vary Flux) | Detectors Exempt | Note I | NIS (1 ms) + NSA + NCH + NSA + NAL | 0.401 s Note 12 | Input | 0.02 s | 0.3 |
| RCP Undervoltage | RIS90303-100 and RIS90634-100 | Note I | N/A | N/A | Input | 0.02 s | 0.3 |
| RCP Underfrequency | RIS90634-IOOA | Note I | N/A | N/A | Input | 0.02 s | 0.3 |
| NIS Level - Low | Detectors Exempt | Note I | NIS FMEA (Note 9) | 0.065 s | Input | 0.02 s | 0.3 |
| NIS Level - High | Detectors Exempt | Note I | NIS FMEA (Note 9) | 0.065 s | Input | 0.02 s | 0.3 |
| Containment Pressure ESFAS (SI) Input to Reactor Trip | ITT Barton 386A | 0.50 s | NLP + NAL | 0.1 s | Input | 0.02s | 0.3 |
| Pressurizer Pressure ESFAS (SI) Input to Reactor Trip | ITT Barton 763 | 0.50 s | NLP + NAL | 0.1 s | Input | 0.02 s | 0.3 |

RPS Functions Acronyms

Pzr - Pressurizer
 S/G - Steam Generator
 SI - Safety Injection
 ESFAS - Engineered Safety Features Actuation System

RCS - Reactor Coolant System
 RCP - Reactor Coolant Pump
 NIS - Nuclear Instrumentation System

OPDT - Overpower Δ Temperature
 OTDT - Overtemperature Δ Temperature

Table 2 - Engineered Safety Features (Note 14)

| Function | Sensor Notes 2 & 3 | Sensor Time | 7300 / NIS String Note 4 | 7300 Time Note 11 | SSPS Relays Note 5 | SS T No |
|--|--------------------|-------------|--------------------------|-------------------|-------------------------------|---------|
| Containment Press - High (SI) | ITT Barton 386A | 0.50 s | NLP + NAL | 0.1 s | Input + Master + Slave +Slave | 0.1 |
| Containment Press - High High (CS & SLI) | ITT Barton 386A | 0.50 s | NLP + NAL | 0.1 s | Input + Master + Slave | 0.0 |

| | | | | | | |
|------------------------------------|--------------------|---------|-----------|---------|--------------------------------|-----|
| Steam Pressure -Low (SLI) | Rosemount 1153GD9 | 0.50 s | NLP + NAL | 0.1 s | Input + Master + Slave | 0.0 |
| Steam Pressure-Neg Rate High (SLI) | Rosemount 1153 GD9 | 0.50 s | NLP + NAL | 0.1 s | Input + Master + Slave | 0.0 |
| Pzr-Pressure- Low (SI) | ITT Barton 763 | 0.50 s | NLP + NAL | 0.1 s | Input + Master + Slave + Slave | 0.1 |
| RWST Level - Low (Note 10) | Note 10 | Note 10 | Note 10 | Note 10 | Note 10 | No |
| SIG Level - Low Low (AFW) | ITT Barton 764 | 0.50 s | NLP + NAL | 0.1 s | Input + Master + Slave | 0.0 |
| SIG Level - Hi-h High (TT & FWI) | ITT Barton 764 | 0.50 s | NLP + NAL | 0.1 s | Input + Master + Slave | 0.0 |
| AFW Suction Transfer (Note 10) | Note 10 | Note 10 | Note 10 | Note 10 | Note 10 | No |

Engineered Safety Features Actuation System (ESFAS) Function Acronyms:
 FWI - Feedwater Isolation CS - Containment Spray
 TT - Turbine Trip SLI - Steamline Isolation

SI - Safety Injection
 AFW - Auxiliary Feedwater

Table 1 and 2 Notes

1. Sensors for these functions were not evaluated in WCAP-13632-P-A, Revision 2. Therefore, allocated sensor response times are not used and sensors will continue to be tested as required. NIS detectors are exempt from RTT per TS.
2. Allocated sensor response times for the ITT Barton (model 763 - Pressurizer Pressure, model 764 - Steam Generator Level), and Rosemount (model 1153GD9 - Steam Pressure) pressure sensors specified in Tables 1 and 2 are based on historical records (Method 1) of acceptable RTT obtained from the McGuire response time testing program. The historical response time test data for these sensors is documented in various test reports from Analysis and Measurement Services produced from on-site in-situ testing performed via noise analysis method. The test reports span a time period from July 1990 through January 2002. These test results were submitted by the licensee in their letter of June 3, 2002.
3. Allocated sensor response times for the ITT Barton (model 386A - Containment Pressure) pressure sensors specified in Tables 1 and 2 are based on historical records (Method 1) of acceptable RTT obtained from the McGuire response time testing program. The historical response time test data for these sensors is documented in McGuire plant test procedures performed via step input method. The test data span a time period from July 1990 through January 2002. These test results were submitted by the licensee in their letter dated June 3, 2002.
4. Model 7300 cards installed at McGuire were evaluated in Section 4.5 of WCAP-14036-P-A, Revision 1 (card types NLP, NSA, NAL, NCH, and NRA). The allocated response times for 7300 cards are derived from Table 8-1 of the WCAP. All NLL type time domain cards will have their time domain characteristics verified within calibration procedures. This is consistent with discussion in Section 4.0 of WCAP-14036-P-A, Revision 1.
5. Relays evaluated in Section 4.8 of WCAP-14036-P-A, Revision 1, and used in the McGuire Solid State Protection System (SSPS) are as follows:
 - Input and master relays: Clare C. P. and Company GP1 series.
 - Slave relays: Westinghouse Type AR and/or Potter & Brumfield MDR series

The following allocated response times for the SSPS relays are in accordance with Section 4.8 of WCAP-14036-P-A, Revision 1; logic circuit response time was determined to be insignificant.

 - Reactor trip functions: 20 milliseconds (msec (input relay))
 - ESFAS functions: 26 msec + 26 msec + 36 msec = 88 msec (input + master + slave), or 26 msec + 26 msec + 36 msec + 36 msec = 124 msec (input + master + 2 slaves in series)
6. Time includes: reactor trip breaker time \leq 150 msec and stationary gripper release time \leq 150 msec.
7. Time includes: undervoltage module delay time \leq 0.8 sec, and Westinghouse assumed

EMF Delay Time 250 ms.

Table 1 and 2 Notes (Continued)

8. Time includes: underfrequency module delay time ≤ 0.25 sec.
9. The power range NIS cards installed at McGuire were evaluated in Section 4.6 of WCAP-14036-P-A, Revision 1 (detector current monitor, summing and level amplifier, level trip bistable, and isolation amplifier).
10. These ESFAS functions are not part of the SSPS and were not covered under the WCAPs. Therefore, response time testing will continue as required for these functions.
11. The allocated response times are derived from Table 8-1 of the WCAP.
12. Includes allowance for both NIS and 7300 cards.
13. This is the portion of the required time that is allocated to the sensor and electronics. The remainder of the required time is allocated to the final device (valve, pump, etc.).
14. These tables include the equipment currently installed at McGuire. The calculation demonstrates that the sum of the allocated response times for the equipment installed at McGuire is less than the required time. As long as the equipment models used are included in the WCAP or the applicability study and the sum of the allocated times remains less than the required time, the WCAP methodology is supported.

McGuire Nuclear Station

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