



H. B. Barron
Vice President

Duke Energy Corporation

McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-9340
(704) 875-4800 OFFICE
(704) 875-4809 FAX

August 22, 2000

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Subject: Duke Energy Corporation (DEC)
McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369 and 50-370
Proposed Amendment to Technical Specification (TS)
3.3.2 - Engineered Safety Feature Actuation System
Instrumentation

Pursuant to 10 CFR 50.4 and 10 CFR 50.90, this letter submits a license amendment request (LAR) for McGuire Nuclear Station Facility Operating Licenses (FOL) NPF-9 and NPF-17, Appendix A, Technical Specifications.

A deficiency exists in the current ACTION statement for the McGuire Technical Specifications which allows an inoperable Refueling Water Storage Tank (RWST) level channel to be placed in the trip condition for an indefinite period of time. With one channel in a tripped condition, a single failure of another RWST level channel could result in a premature swapover of the Residual Heat Removal (ND) pumps to the Containment Sump following a Loss of Coolant Accident (LOCA). This deficiency was reported to the NRC on March 6, 2000 via McGuire Licensee Event Report 369/00-02.

Administrative Letter (AL) 98-10 describes NRC staff expectations upon discovery of an inadequate TS. In accordance with that guidance, DEC made the appropriate notifications, implemented administrative controls to temporarily address the TS deficiency, and is submitting this LAR as a permanent resolution. Given the presence of the administrative controls, DEC is not requesting any form of expedited review of this LAR. Duke does request 30 days to implement this amendment following its approval by the NRC.

One basis for the 48 hour time limitation proposed by this LAR is the small probability of a random failure of another RWST level channel within a given 48 hour period. In addition, this time is consistent with the allowed time contained in a NRC approved LAR

ADD 1

U. S. Nuclear Regulatory Commission
August 22, 2000
Page 2 of 5

submitted by Arkansas Nuclear One, Unit No. 2 (TAC M99336). It is possible that longer allowed times could be justified with further analysis (e.g. PRA analyses). However, McGuire is submitting this LAR now in order to correct a condition adverse to quality.

The amendment package contains the following:

- Attachment 1 contains the proposed changes to the Technical Specification pages and the Bases pages.
- Attachment 2 contains the revised Technical Specification pages and Bases pages.
- Attachment 3 provides the Description of Proposed Changes and Technical Justification.
- Pursuant to 10 CFR 50.92, Attachment 4 documents the determination that the amendment contains No Significant Hazards Considerations.
- Pursuant to 10 CFR 51.22 (c) (9), Attachment 5 provides the basis for the categorical exclusion from performing an Environmental Assessment/Impact Statement.

Implementation of this amendment to the McGuire Facility Operating License and Technical Specifications will not impact the McGuire UFSAR.

In accordance with the Duke internal procedures and the Quality Assurance Program Topical Report, the proposed amendment has been reviewed and approved by the Plant Operations Review Committee and Duke Corporate Nuclear Safety Review Board.

Pursuant to 10 CFR 50.91, a copy of this LAR is being forwarded to the appropriate North Carolina State Officials.

Please direct questions on this LAR to Julius Bryant, McGuire Regulatory Compliance at (704) 875-4162.

U. S. Nuclear Regulatory Commission
August 22, 2000
Page 3 of 5

Very truly yours,

A handwritten signature in cursive script, appearing to read "H. B. Barron".

H. B. Barron, Vice President
McGuire Nuclear Station

Attachments

U. S. Nuclear Regulatory Commission
August 22, 2000
Page 4 of 5

xc: (w/attachments)

Mr. Luis A. Reyes
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, GA 30303

Mr. Scott M. Shaeffer
Senior NRC Resident Inspector
McGuire Nuclear Station

Mr. Frank Rinaldi
NRC Senior Project Manager
Office of U. S. Nuclear Regulatory Commission
One White Flint North, Mail Stop 0-14H25
Washington, D.C. 20555-0001

Mr. R. M. Frye, Director
Division of Radiation Protection
State of North Carolina
3825 Barrett Drive
Raleigh, N. C. 27609-7221

U. S. Nuclear Regulatory Commission
August 22, 2000
Page 5 of 5

AFFIDAVIT

H. B. Barron, being duly sworn, states that he is Vice President of McGuire Nuclear Station, Duke Energy Corporation; that he is authorized on the part of said corporation to sign and file with the U. S. Nuclear Regulatory Commission this amendment to the McGuire Nuclear Station Facility Operating Licenses Nos. NPF-9 and NPF-17; and, that all statements and matters set forth therein are true and correct to the best of his knowledge.

H. B. Barron

H. B. Barron, Vice President
McGuire Nuclear Station
Duke Energy Corporation

Subscribed and sworn to before me: August 23, 2000
Date

Deborah S. Rome
Notary Public
Deborah S. Rome

My Commission Expires: December 19, 2004
Date

Attachment 1

Proposed Changes To The Technical Specifications and Bases Pages

ACTIONS (continued)

CONDITIONS	REQUIRED ACTION	COMPLETION TIME
N. One or more channels of Auxiliary Feedwater Suction Pressure-Low for one auxiliary feedwater pump inoperable.	N.1 Restore channel(s) to OPERABLE status.	48 hours
	<u>OR</u> N.2 Declare associated auxiliary feedwater pump inoperable.	48 hours
O. One or more channels of Auxiliary Feedwater Suction Pressure-Low for two or more auxiliary feedwater pumps inoperable.	O.1 Declare associated auxiliary feedwater pumps inoperable.	Immediately
P. One channel inoperable.	P.1 Place channel in trip.	1 hour
	<u>OR</u> P.2.1 Be in MODE 3. <u>AND</u> P.2.2 Be in MODE 4.	7 hours 13 hours

(continued)

Replace

Replace

P.1 Place channel in trip
AND
P.2 Restore channel to OPERABLE status.

1 hour
48 hours

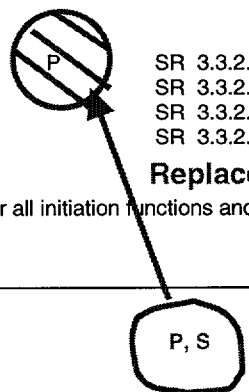
ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Q. One channel inoperable.	Q.1 Verify interlock is in required state for existing unit condition.	1 hour
	<u>OR</u>	
	Q.2.1 Be in MODE 3.	7 hours
	<u>AND</u>	
	Q.2.2 Be in MODE 4.	13 hours
R. One or more Containment Pressure Control System channel(s) inoperable.	R.1 Declare affected supported system inoperable.	Immediately
S. Required Action and associated Completion Time of Condition P not met.	S.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	S.2 Be in MODE 4.	12 hours

ADD

Table 3.3.2-1 (page 4 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT
6. Auxiliary Feedwater (continued)						
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
d. Station Blackout						
(1) Loss of voltage	1,2,3	3 per bus	D	SR 3.3.2.7 SR 3.3.2.9	≥ 3122 V (Unit 1) ≥ 3108 V (Unit 2) with 8.5 ± 0.5 sec time delay	≥ 3174 V (Unit 1) ≥ 3157 V (Unit 2) ± 45 V with 8.5 ± 0.5 sec time delay
(2) Degraded Voltage	1,2,3	3 per bus	D	SR 3.3.2.7 SR 3.3.2.9	≥ 3661 V (Unit 1) ≥ 3685.5 V (Unit 2) with ≤ 11 sec with SI and ≤ 600 sec without SI time delay	≥ 3678.5 V (Unit 1) ≥ 3703 V (Unit 2) with ≤ 11 sec with SI and ≤ 600 sec without SI time delay
e. Trip of all Main Feedwater Pumps	1,2(a)	1 per MFW pump	K	SR 3.3.2.7 SR 3.3.2.9	NA	NA
f. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low	1,2,3	2 per MDP, 4 per TDP	N,O	SR 3.3.2.7 SR 3.3.2.8 SR 3.3.2.9	≥ 3 psig	≥ 3.5 psig
7. Automatic Switchover to Containment Sump						
a. Refueling Water Storage Tank (RWST) Level - Low	1,2,3	3		SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.8 SR 3.3.2.9	≥ 175.85 inches	≥ 180 inches
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					



(continued)

(a) Above the P-11 (Pressurizer Pressure) Interlock.

BASES

ACTIONS (continued)

this case, the associated AFW pumps must be declared inoperable immediately.

P.1, P.2.1 and P.2.2

Condition P applies to RWST Level-Low Coincident with Safety Injection.

RWST Level-Low Coincident With SI provides actuation of switchover to the containment sump. Placing the inoperable channel in trip results in a one-out-of-two logic configuration. If the channel cannot be returned to OPERABLE status or placed in the trip condition within 1 hour, the unit must be brought to MODE 3 within the following 6 hours and MODE 4 within the next 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

CHANGE
AS PER
NEXT
PAGE

Q.1, Q.2.1 and Q.2.2

Condition Q applies to the P-11 and P-12 interlocks.

With one channel inoperable, the operator must verify that the interlock is in the required state for the existing unit condition. The verification is performed by visual observation of the permissive status light in the unit control room. This action manually accomplishes the function of the interlock. Determination must be made within 1 hour. The 1 hour Completion Time is equal to the time allowed by LCO 3.0.3 to initiate shutdown actions in the event of a complete loss of ESFAS function. If the interlock is not in the required state (or placed in the required state) for the existing unit condition, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of these interlocks.

R.1

Condition R applies to the Containment Pressure Control System Start and Terminate Permissives

P.1 and P.2

Condition P applies to RWST Level-Low Coincident with Safety Injection.

RWST Level-Low Coincident With SI provides actuation of switchover to the containment sump. The inoperable channel shall be returned to OPERABLE status or placed in the trip condition within 1 hour. This Condition applies to a function that operates on two-out-of-three logic. Therefore, failure of one channel places the Function in a two-out-of-two configuration. The channel must be tripped to place the Function in a one-out-of-two configuration that satisfies redundancy requirements. A channel placed in the trip condition shall be restored to OPERABLE status within 48 hours. With one channel in the trip condition, a single failure of another channel coincident with a design basis Loss of Coolant Accident (LOCA) could result in premature automatic swapover of ECCS pumps to the containment recirculation sump. For a failure leading to early swapover, plant analyses assume operators do not have sufficient time to resolve the problem prior to ECCS pump damage. Consequently, as a result of this premature swapover, both trains of ECCS pumps could fail due to insufficient sump water level. This could prevent the ECCS pumps from performing their post-LOCA cooling function. The allowed Completion Time of 48 hours is reasonable since, based on operating experience, there is a very small probability of a random failure of another RWST level channel in a given 48 hour period.

CHANGES TO PAGE B 3.3.2-36

BASES

ACTIONS (continued)

With one or more channels inoperable, the affected containment spray, containment air return fans, and hydrogen skimmer fans must be declared inoperable immediately. The supported system LCOs provide the appropriate Required Actions and Completion Times for the equipment made inoperable by the inoperable channel. The immediate Completion Time is appropriate since the inoperable channel could prevent the supported equipment from starting when required. Additionally, protection from an inadvertent actuation may not be provided if the terminate function is not OPERABLE.

ADD

S.1 and S.2

Condition S applies to RWST Level-Low Coincident with Safety Injection.

When Required Actions cannot be completed within their Completion Time, the unit must be brought to a MODE or Condition in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and MODE 4 within 12 hours of entering the Condition. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

SURVEILLANCE REQUIREMENTS

The SRs for each ESFAS Function are identified by the SRs column of Table 3.3.2-1.

A Note has been added to the SR Table to clarify that Table 3.3.2-1 determines which SRs apply to which ESFAS Functions.

Note that each channel of process protection supplies both trains of the ESFAS. When testing channel I, train A and train B must be examined. Similarly, train A and train B must be examined when testing channel II, channel III, and channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

Attachment 2

Revised Technical Specifications and Bases Pages

ACTIONS (continued)

CONDITIONS	REQUIRED ACTION	COMPLETION TIME
<p>N. One or more channels of Auxiliary Feedwater Suction Pressure-Low for one auxiliary feedwater pump inoperable.</p>	<p>N.1 Restore channel(s) to OPERABLE status.</p>	<p>48 hours</p>
	<p><u>OR</u></p> <p>N.2 Declare associated auxiliary feedwater pump inoperable.</p>	<p>48 hours</p>
<p>O. One or more channels of Auxiliary Feedwater Suction Pressure-Low for two or more auxiliary feedwater pumps inoperable.</p>	<p>O.1 Declare associated auxiliary feedwater pumps inoperable.</p>	<p>Immediately</p>
<p>P. One channel inoperable.</p>	<p>P.1 Place channel in trip.</p>	<p>1 hour</p>
	<p><u>AND</u></p> <p>P.2 Restore channel to OPERABLE status.</p>	<p>48 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Q. One channel inoperable.	Q.1 Verify interlock is in required state for existing unit condition.	1 hour
	<u>OR</u>	
	Q.2.1 Be in MODE 3.	7 hours
	<u>AND</u>	
	Q.2.2 Be in MODE 4.	13 hours
R. One or more Containment Pressure Control System channel(s) inoperable.	R.1 Declare affected supported system inoperable.	Immediately
S. Required Action and associated Completion Time of Condition P not met.	S.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	S.2 Be in MODE 4.	12 hours

Table 3.3.2-1 (page 4 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT
6. Auxiliary Feedwater (continued)						
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
d. Station Blackout						
(1) Loss of voltage	1,2,3	3 per bus	D	SR 3.3.2.7 SR 3.3.2.9	≥ 3122 V (Unit 1) ≥ 3108 V (Unit 2) with 8.5 ± 0.5 sec time delay	≥ 3174 V (Unit 1) ≥ 3157 V (Unit 2) ± 45 V with 8.5 ± 0.5 sec time delay
(2) Degraded Voltage	1,2,3	3 per bus	D	SR 3.3.2.7 SR 3.3.2.9	≥ 3661 V (Unit 1) ≥ 3685.5 V (Unit 2) with ≤ 11 sec with SI and ≤ 600 sec without SI time delay	≥ 3678.5 V (Unit 1) ≥ 3703 V (Unit 2) with ≤ 11 sec with SI and ≤ 600 sec without SI time delay
e. Trip of all Main Feedwater Pumps	1,2(a)	1 per MFW pump	K	SR 3.3.2.7 SR 3.3.2.9	NA	NA
f. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low	1,2,3	2 per MDP, 4 per TDP	N,O	SR 3.3.2.7 SR 3.3.2.8 SR 3.3.2.9	≥ 3 psig	≥ 3.5 psig
7. Automatic Switchover to Containment Sump						
a. Refueling Water Storage Tank (RWST) Level - Low	1,2,3	3	P,S	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.8 SR 3.3.2.9	≥ 175.85 inches	≥ 180 inches
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					

(continued)

(a) Above the P-11 (Pressurizer Pressure) Interlock.

BASES

ACTIONS (continued)

this case, the associated AFW pumps must be declared inoperable immediately.

P.1 and P.2

Condition P applies to RWST Level-Low Coincident with Safety Injection.

RWST Level-Low Coincident With SI provides actuation of switchover to the containment sump. The inoperable channel shall be returned to OPERABLE status or placed in the trip condition within 1 hour. This Condition applies to a function that operates on two-out-of-three logic. Therefore, failure of one channel places the Function in a two-out-of-two configuration. The channel must be tripped to place the Function in a one-out-of-two configuration that satisfies redundancy requirements. A channel placed in the trip condition shall be restored to OPERABLE status within 48 hours. With one channel in the trip condition, a single failure of another channel coincident with a design basis Loss of Coolant Accident (LOCA) could result in premature automatic swapover of ECCS pumps to the containment recirculation sump. For a failure leading to early swapover, plant analyses assume operators do not have sufficient time to resolve the problem prior to ECCS pump damage. Consequently, as a result of this premature swapover, both trains of ECCS pumps could fail due to insufficient sump water level. This could prevent the ECCS pumps from performing their post-LOCA cooling function. The allowed Completion Time of 48 hours is reasonable since, based on operating experience, there is a very small probability of a random failure of another RWST level channel in a given 48 hour period.

Q.1, Q.2.1 and Q.2.2

Condition Q applies to the P-11 and P-12 interlocks.

With one channel inoperable, the operator must verify that the interlock is in the required state for the existing unit condition. The verification is performed by visual observation of the permissive status light in the unit control room. This action manually accomplishes the function of the interlock. Determination must be made within 1 hour. The 1 hour Completion Time is equal to the time allowed by LCO 3.0.3 to initiate shutdown actions in the event of a complete loss of ESFAS function. If the interlock is not in the required state (or placed in the required state) for the existing unit condition, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to

BASES

ACTIONS (continued)

reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of these interlocks.

R.1

Condition R applies to the Containment Pressure Control System Start and Terminate Permissives.

With one or more channels inoperable, the affected containment spray, containment air return fans, and hydrogen skimmer fans must be declared inoperable immediately. The supported system LCOs provide the appropriate Required Actions and Completion Times for the equipment made inoperable by the inoperable channel. The immediate Completion Time is appropriate since the inoperable channel could prevent the supported equipment from starting when required. Additionally, protection from an inadvertent actuation may not be provided if the terminate function is not OPERABLE.

S.1 and S.2

Condition S applies to RWST Level-Low Coincident with Safety Injection.

When Required Actions cannot be completed within their Completion Time, the unit must be brought to a MODE or Condition in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and MODE 4 within 12 hours of entering the Condition. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

SURVEILLANCE REQUIREMENTS

The SRs for each ESFAS Function are identified by the SRs column of Table 3.3.2-1.

A Note has been added to the SR Table to clarify that Table 3.3.2-1 determines which SRs apply to which ESFAS Functions.

BASES

SURVEILLANCE REQUIREMENTS (continued)

Note that each channel of process protection supplies both trains of the ESFAS. When testing channel I, train A and train B must be examined. Similarly, train A and train B must be examined when testing channel II, channel III, and channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

SR 3.3.2.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and reliability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.2.2

SR 3.3.2.2 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 31 days on a STAGGERED TEST BASIS, using the semiautomatic tester. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and that there is an intact voltage signal path to the master relay coils. The Frequency of every 31 days on

BASES

SURVEILLANCE REQUIREMENTS (continued)

a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

SR 3.3.2.3

SR 3.3.2.3 is the performance of a COT on the RWST level and Containment Pressure Control Start and Terminate Permissives.

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. Setpoints must be found within the Allowable Values specified in Table 3.3.1-1. This test is performed every 31 days. The Frequency is adequate, based on operating experience, considering instrument reliability and operating history data.

SR 3.3.2.4

SR 3.3.2.4 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The time allowed for the testing (4 hours) and the surveillance interval are justified in Reference 7.

SR 3.3.2.5 is the performance of a COT.

A COT is performed on each required channel to ensure the channel will perform the intended Function. The tested portion of the loop must trip within the Allowable Values specified in Table 3.3.1-1.

The setpoint shall be left set consistent with the assumptions of the setpoint methodology.

The Frequency of 92 days is justified in Reference 7.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.6

SR 3.3.2.6 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function, or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay. This test is performed every 92 days. The Frequency is adequate, based on industry operating experience, considering instrument reliability and operating history data.

SR 3.3.2.7

SR 3.3.2.7 is the performance of a TADOT. This test is a check of the Manual Actuation Functions, AFW pump start, Reactor Trip (P-4) Interlock, and Doghouse Water Level-High High feedwater isolation. It is performed every 18 months. Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). The Frequency is adequate, based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT for manual initiation Functions. The manual initiation Functions have no associated setpoints.

SR 3.3.2.8

SR 3.3.2.8 is the performance of a CHANNEL CALIBRATION.

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology.

The Frequency of 18 months is based on the assumption of an 18 month

BASES

SURVEILLANCE REQUIREMENTS (continued)

calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable. The applicable time constants are shown in Table 3.3.2-1.

SR 3.3.2.9

This SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response Time testing acceptance criteria are included in the UFSAR (Ref. 2). Individual component response times are not modeled in the analyses. The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the Trip Setpoint value at the sensor, to the point at which the equipment in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position).

For channels that include dynamic transfer functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer functions set to one with the resulting measured response time compared to the appropriate UFSAR response time. Alternately, the response time test can be performed with the time constants set to their nominal value provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

ESF RESPONSE TIME tests are conducted on an 18 month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. The final actuation device in one train is tested with each channel. Therefore, staggered testing results in response time verification of these devices every 18 months. The 18 month Frequency is consistent with the typical refueling cycle and is based on unit operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

This SR is modified by a Note that clarifies that the turbine driven AFW pump is tested within 24 hours after reaching 900 psig in the SGs.

BASES

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 7.
3. UFSAR, Chapter 15.
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).
7. WCAP-10271-P-A, Supplement 1 and Supplement 2, Rev. 1, May 1986 and June 1990.

Attachment 3

Description of Proposed Changes and Technical Justification

Description of Proposed Changes

In accordance with the requirements of 10CFR50.90 and 10CFR50.4, DEC proposes to revise the McGuire Nuclear Station TS's as stated below. The proposed revisions will provide a limitation on the amount of time an RWST level channel can be in a trip condition. In addition, proposed changes to the applicable TS Bases are included.

The proposed changes are as follows:

1. Condition "P" of TS 3.3.2 would be changed to provide instructions to place one inoperable RWST level channel in trip within 1 hour and to restore the channel to operable status within 48 hours.
2. Condition "S" of TS 3.3.2 would be added. Should the required actions and completion times of TS 3.3.2 Condition "P" not be met, Condition "S" requires that the applicable Unit be in MODE 3 within 6 hours and in MODE 4 within 12 hours.

Technical Justification

Background:

McGuire Units 1 and 2 each have a Refueling Water Storage Tank (RWST) which provides a suction source for the respective Unit's Residual Heat Removal (ND) pumps, Safety Injection (NI) pumps, and Charging (NV) pumps (low head, medium head, and high head safety injection pumps, respectively). These pumps start upon receipt of a safety injection (SI) signal to inject Emergency Core Cooling System (ECCS) water into the reactor following a Loss of Coolant Accident (LOCA). In addition, the RWST provides a suction source for each Unit's Containment Spray (NS) pumps which, on receipt of a high-high containment pressure signal following a high energy line break in containment, start and spray cool water into the containment atmosphere to maintain pressure less than the design pressure of containment.

Three safety related level transmitters per Unit monitor RWST level and provide low RWST level signals at 180 inches decreasing to the Engineered Safety Feature Actuation System (ESFAS). With two of these channels in a low level bistable trip condition coincident with an SI signal, the ESFAS automatically swaps the suction source for the ND pumps from the RWST to the Containment

Sump to initiate the recirculation cooling phase of a LOCA event. A low RWST level signal would also prompt manual operator actions to secure NI and NV injection flow from the RWST and align these pumps to receive flow from the ND pumps to assist in post-LOCA recirculation phase cooling as needed. Note that, if the NS pumps were still running, operators would also manually switch the suction source for these pumps from the RWST to the Containment Sump upon receipt of a low-low RWST level signal. Control Room operators are trained to perform the above manual actions as needed using approved Emergency Procedures.

Prior to implementation of the Improved Technical (ITS) at McGuire in November 1998, old McGuire Technical Specification 3.3.2 - ESFAS Instrumentation, provided an option to allow continued operation of the affected Unit until performance of the next channel operational test if an inoperable RWST level channel was placed in the trip condition. The applicable operational test had a monthly surveillance interval. McGuire ITS 3.3.2 provides an option to place an inoperable RWST level channel in the trip condition within 1 hour or be in Mode 3 within 7 hours and Mode 4 within 13 hours. However, unlike the old TS 3.3.2, ITS 3.3.2 allows operation in this trip condition for an indefinite period of time. With no time restrictions, a channel placed in the trip condition cannot be considered the design basis single failure assumed during a design basis accident. Therefore, with one channel of RWST level instrumentation in the trip condition, a single failure of another channel coincident with a design basis LOCA could result in premature automatic swapover of the low head ND pumps to the Containment Sump. For a failure leading to early swapover, plant analyses assume operators do not have sufficient time to resolve the problem prior to pump damage. Consequently, as a result of this premature swapover, both trains of the ND pumps could fail due to insufficient Containment Sump water level. This could prevent these pumps from performing their post-LOCA cooling function. In addition, since they are dependent on the ND pumps for a water supply during the post-LOCA recirculation phase, the NI and NV pumps may not be available to assist in this recirculation cooling function.

On March 6, 2000, McGuire submitted Licensee Event Report (LER) 369/00-02, Revision 0 which identified this Technical Specification deficiency. Duke committed to submit this Technical Specification amendment as a planned corrective action in that LER. These changes will provide a limitation on the amount of time an inoperable RWST level channel can be in a trip condition. This will minimize the time a Unit is exposed to the

possibility of a premature swapover of ECCS pumps to the Containment Sump.

Proposed Change #1:

The proposed completion time of 1 hour to place an inoperable RWST level channel in trip is consistent with the current McGuire TS 3.3.2 requirements. The 48 hour allowed time to restore the channel to operable status was selected because operating experience has demonstrated there is a very small probability of a random failure of another RWST channel in a given 48 hour period. In addition, the 48 hour allowed time is consistent with the allowed time the NRC approved for an RWST channel in a trip condition at Arkansas Nuclear One, Unit No 2 (TAC M99336, Amendment No. 195 to Facility Operating License No. NPF-6 on December 29, 1998).

Proposed Change #2:

After the TS Condition for an inoperable RWST level channel is entered, ITS 3.3.2 allows up to 7 total hours to enter Mode 3 and 13 total hours to enter Mode 4 if that channel is not placed in trip within 1 hour. Proposed TS Condition "S" would be entered if an inoperable RWST level channel was not placed in trip within 1 hour or if that channel was not restored to operable status within 48 hours of entering Condition "P". After entering TS Condition "S", the proposed changes would allow up to 6 total hours to enter Mode 3 and 12 total hours to enter Mode 4.

The proposed Condition "S" required action completion times do not represent a change in the current ITS 3.3.2 completion times for the situation where an inoperable RWST level channel is not placed in trip within 1 hour. However, these proposed times are also being applied to the case where the inoperable channel is not restored to operable status within 48 hours. In this case, these times minimize the additional time the Unit is exposed to the possibility of a premature swapover of ECCS pumps to the Containment Sump while ensuring sufficient time for the Unit to proceed to the required unit conditions in an orderly fashion and without challenging unit systems. Note that the allowed time of 6 hours to proceed to Mode 3 is consistent with the allowed time the NRC approved as part of the previously mentioned Amendment No. 195 to the Arkansas Nuclear One, Unit No 2 Facility Operating License. The additional 6 hours to proceed to Mode 4 is consistent with the current requirements of McGuire TS 3.3.2, Condition "P". Note that, in Mode 4, the unit does not have any

analyzed transients or conditions that require the explicit use of the protective functions provided by the RWST level instrumentation.

Attachment 4

No Significant Hazards Consideration

No Significant Hazards Considerations:

In accordance with the criteria set forth in 10 CFR 50.91 and 50.92, McGuire Nuclear Station has evaluated this proposed Technical Specification change and determined it does not represent a significant hazards consideration. The following is provided in support of this conclusion.

1. Does the change involve a significant increase in the probability of consequences of an accident previously evaluated?

No. The proposed change modifies the allowed outage time that a channel of the Refueling Water Storage Tank (RWST) can be in the tripped condition from an indefinite period of time to a more conservative maximum of 48 hours. The Engineered Safety Features Actuation System (ESFAS) is an accident mitigating system, and not an accident initiator. Therefore, the proposed change will have no impact on any accident probabilities. Accident consequences will not be affected, as no changes are being made to the plant involving a reduction in reliability or effectiveness of the Emergency Core Cooling System (ECCS). Consequently, any previous evaluations associated with accidents will not be affected by this change.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The proposed change does not modify the design or configuration of the plant. The proposed change provides a more conservative time limit for a channel to be in the tripped condition. No physical changes are being made to plant systems, structures or components nor will the proposed change reduce the ability of any of the safety related equipment required for accident mitigation. Consequently, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

No. Margin of safety is related to the confidence in the ability of the fission product barriers to perform their design functions during and following accident conditions. These barriers include the fuel cladding, the reactor coolant system, and the containment system. The proposed change provides a more restrictive time limit for a channel of the RWST to be in a

tripped condition than is currently allowed by the ITS. The performance of the fission product barriers will not be degraded by the proposed changes. Consequently, plant safety analyses will not be affected.

Conclusion:

Based upon the reasoning presented above and the previous discussion in the amendment request, McGuire Nuclear Station has determined that the requested change does not involve a significant hazards consideration.

Attachment 5

**Environmental Assessment/Impact
Statement**

Environmental Impact Assessment:

Pursuant to 10 CFR 51.22(b), an evaluation of this license amendment request has been performed to determine whether or not it meets the criteria for categorical exclusion set forth in 10 CFR 51.22 (c) (9) of the regulations. It has been determined that the proposed amendment does not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor increase individual or cumulative occupational radiation exposures. Therefore, the proposed amendment meets the criteria given in 10 CFR 51.22 (c) (9) for a categorical exclusion from the requirement for an Environmental Impact Assessment.