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May 1, 2001

2CAN050101

U. S. Nuclear Regulatory Commission
Document Control Desk
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Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Supplemental to Amendment Request Concerning Revisions to Technical Specification 3.4.6, RCS Leak Detection

Gentlemen:

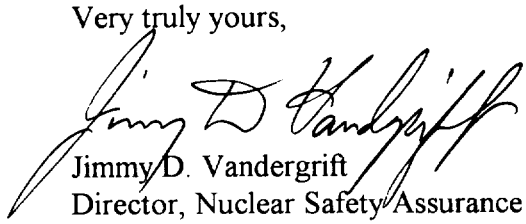
By letter dated February 6, 2001 (2CAN020102), Entergy Operations, Inc. (Entergy) proposed a revision to the Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specification (TS) 3.4.6, RCS Leak Detection. Entergy proposed the change with what was believed to be consistent with that of NUREG 1432, Revised Standard Technical Specifications (RSTS). However, subsequent conversations with the NRC Staff identified that the proposed Limiting Condition for Operation should require all three detection systems to be operable. As a result of these conversations, Entergy is revising the proposed wording to be consistent with the interpretation of the RSTS provided by the Staff. Since this change retains the current TS Limiting Condition for Operation requirements for ANO-2 and otherwise establishes consistency with the RSTS, no further justification is being provided. Due to space limitations, the aforementioned revisions have required some information from TS page 3/4 4-13 to be moved to a newly created TS page 3/4 4-13a. Likewise, some information on Bases page B 3/4 4-3 has been moved to the following Bases page B 3/4 4-4 page. Please find attached the revised pages associated with ANO-2 TS 3.4.6. TS markup pages are also attached for information. The proposed revisions do not affect the no significant hazards consideration previously provided to the NRC.

Entergy Operations requests that the effective date for this TS change to be within 60 days of approval. Although this request is neither exigent nor emergency, your prompt review is requested. There are no commitments associated with this change request.

A001

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 1, 2001.

Very truly yours,



Jimmy D. Vandergrift
Director, Nuclear Safety Assurance
Arkansas Nuclear One

JDV/dbb
Attachment

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PROPOSED ANO-2 TECHNICAL SPECIFICATION CHANGES

3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.6.1 The following Reactor Coolant System leakage detection instrumentation shall be OPERABLE:

a. One containment sump level monitor

b. One containment atmosphere particulate radioactivity monitor, and

c. One containment atmosphere gaseous radioactivity monitor.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one or more containment atmosphere radioactivity monitor(s) inoperable, operation may continue for up to 30 days for each inoperable monitor provided:

1. grab samples of the containment atmosphere are obtained and analyzed at least once per 24 hours, or

2. a Reactor Coolant System water inventory balance is performed at least once per 24 hours in accordance with Surveillance Requirement 4.4.6.2.1.a;*

otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With the containment sump level monitor inoperable, operation may continue for up to 30 days provided a Reactor Coolant System water inventory balance is performed at least once per 24 hours in accordance with Surveillance Requirement 4.4.6.2.1.a;* otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With the containment sump level monitor inoperable and one containment atmosphere radioactivity monitor inoperable, operation may continue for up to 30 days for each inoperable monitor provided a Reactor Coolant System water inventory balance is performed at least once per 24 hours in accordance with Surveillance Requirement 4.4.6.2.1.a;* otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. The provisions of Specification 3.0.4 are not applicable.

*Not required until 12 hours after establishment of steady state conditions.

3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

SURVEILLANCE REQUIREMENTS

4.4.6.1 The leakage detection instrumentation shall be demonstrated OPERABLE by:

a. Performing a CHANNEL CHECK of the required containment atmosphere radioactivity monitors at least once per 12 hours.

b. Performing a CHANNEL CHECK of the containment sump level monitor at least once per 12 hours.

c. Performing a CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitors at least once per 31 days.

d. Performing a CHANNEL CALIBRATION of the containment sump level monitor at least once per 18 months.

e. Performing a CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitors at least once per 18 months.

Wastage type defects are unlikely with proper chemistry treatment of the secondary coolant. However, even if a defect should develop in service, it will be found during scheduled inservice steam generator tubes examinations. Plugging will be required for all tubes with imperfections exceeding the plugging limit as defined in Surveillance Requirement 4.4.5.4.a. Steam generator tube inspections of operating plants have demonstrated the capability to reliably detect degradation that could affect tube wall integrity. Additionally, upgraded testing methods will be evaluated and appropriately implemented as better methods are developed and validated for commercial use.

Whenever the results of any steam generator tubing inservice inspection fall into Category C-3 certain results will be reported in a Special Report to the Commission pursuant to Specification 6.9.2 as denoted by Table 4.2-2. Notification of the Commission will be made prior to resumption of plant operation. Such cases will be considered by the Commission on a case-by-case basis and may result in a requirement for analysis, laboratory examinations, tests, additional eddy-current inspection, and revision of the Technical Specifications, if necessary.

3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE

3/4.4.6.1 LEAKAGE DETECTION SYSTEMS

GDC 30 of Appendix A to 10 CFR 50 requires means for detecting and, to the extent practical, identifying the location of the source of RCS LEAKAGE. The RCS leakage detection systems required by this specification are provided to monitor and detect leakage from the Reactor Coolant Pressure Boundary. These detection systems are consistent with the recommendations of Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems" May 1973. Likewise, the actions implemented upon inoperability of a required leak detection instrument are sufficient in maintaining the diversity and accuracy needed to effectively detect RCS leaks.

Industry practice has shown that water flow changes of 0.5 gpm to 1.0 gpm can readily be detected in contained volumes by monitoring changes in water level, in flow rate, or in the operating frequency of a pump. In addition, the reactor coolant contains radioactivity that, when released to the containment, can be detected by radiation monitoring instrumentation. Instrument sensitivities of 10 - 10^6 cpm for particulate and gaseous monitoring are practical for these leakage detection systems.

12 hours is provided by a footnote to allow for plant stabilization before performance of the required reactor coolant inventory balance. This provision is necessary to ensure an accurate measurement is obtained.

3/4.4.6.2 REACTOR COOLANT SYSTEM LEAKAGE

Industry experience has shown that while a limited amount of leakage is expected from the RCS, the unidentified portion of this leakage can be reduced to a threshold value of less than 1 GPM. This threshold value is sufficiently low to ensure early detection of additional leakage.

The 10 GPM IDENTIFIED LEAKAGE limitation provides allowances for a limited amount of leakage from known sources whose presence will not interfere with the detection of UNIDENTIFIED LEAKAGE by the leakage detection systems.

The Surveillance Requirements for RCS Pressure Isolation Valves provide added assurance of valve integrity thereby reducing the probability of gross valve failure and consequent intersystem LOCA. Leakage from the RCS Pressure Isolation Valves is IDENTIFIED LEAKAGE and will be considered as a portion of the allowed limit.

The total steam generator tube leakage limit of 300 gallons per day for all steam generators ensures that the dosage contribution from the tube leakage will be limited to a small fraction of Part 100 limits in the event of either a steam generator tube rupture or steam line break. The 150 gallon per day leakage limit per steam generator ensures that steam generator tube integrity is maintained in the event of a main steam line rupture or under LOCA conditions.

PRESSURE BOUNDARY LEAKAGE of any magnitude is unacceptable since it may be indicative of an impending gross failure of the pressure boundary. Therefore, the presence of any PRESSURE BOUNDARY LEAKAGE requires the unit to be promptly placed in COLD SHUTDOWN.

3/4.4.7 CHEMISTRY

The limitations on Reactor Coolant System chemistry ensure that corrosion of the Reactor Coolant System is minimized and reduce the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the chemistry within the Steady State Limits provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with contaminant concentration levels in excess of the Steady State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the contaminant concentrations to within the Steady State Limits.

The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

3/4.4.8 SPECIFIC ACTIVITY

The limitations on the specific activity of the primary coolant ensure that the resulting 2-hour doses at the site boundary will not exceed an appropriately small fraction of Part 100 limits following a

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS

(For Information Only)

REACTOR COOLANT SYSTEM

3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.6.1 The following Reactor Coolant System leakage detection ~~systems~~ instrumentation shall be OPERABLE:

~~a~~b. ~~A~~ One containment atmosphere particulate radioactivity monitor~~ing system~~, and

~~b~~a. ~~The~~ One containment sump level monitor~~ing system, and~~

c. ~~A~~ One containment atmosphere gaseous radioactivity monitor~~ing system~~.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With ~~only two of~~ one or more~~the above required leakage detection systems~~ containment atmosphere radioactivity monitor(s) inoperable~~OPERABLE~~, operation may continue for up to 30 days for each inoperable monitor provided:

1. grab samples of the containment atmosphere are obtained and analyzed at least once per 24 hours, or ~~when the required gaseous and/or particulate radioactivity monitoring system is inoperable~~

2. a Reactor Coolant System water inventory balance is performed at least once per 24 hours in accordance with Surveillance Requirement 4.4.6.2.1.a;*

~~,~~otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With the containment sump level monitor inoperable, operation may continue for up to 30 days provided a Reactor Coolant System water inventory balance is performed at least once per 24 hours in accordance with Surveillance Requirement 4.4.6.2.1.a;* otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With the containment sump level monitor inoperable and one containment atmosphere radioactivity monitor inoperable, operation may continue for up to 30 days for each inoperable monitor provided a Reactor Coolant System water inventory balance is performed at least once per 24 hours in accordance with Surveillance Requirement 4.4.6.2.1.a;* otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. The provisions of Specification 3.0.4 are not applicable.

*Not required until 12 hours after establishment of steady state conditions.

4.4.6.1 The leakage detection ~~system~~ instrumentation shall be demonstrated OPERABLE by:

a. ~~Containment atmosphere particulate and gaseous monitoring systems performance of CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST at the frequencies specified in Table 4.3-3.~~Performing a CHANNEL CHECK of the required containment atmosphere radioactivity monitors at least once per 12 hours.

b. Performing a CHANNEL CHECK of the containment sump level monitor at least once per 12 hours.

c. Performing a CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitors at least once per 31 days.

~~b~~d. Performing a CHANNEL CALIBRATION of the c~~C~~ontainment sump level monitor~~ing system performance of CHANNEL CALIBRATION~~ at least once per 18 months.

e. Performing a CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitors at least once per 18 months.

Wastage type defects are unlikely with proper chemistry treatment of the secondary coolant. However, even if a defect should develop in service, it will be found during scheduled inservice steam generator tubes examinations. Plugging will be required for all tubes with imperfections exceeding the plugging limit as defined in Surveillance Requirement 4.4.5.4.a. Steam generator tube inspections of operating plants have demonstrated the capability to reliably detect degradation that could affect tube wall integrity. Additionally, upgraded testing methods will be evaluated and appropriately implemented as better methods are developed and validated for commercial use.

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GDC 30 of Appendix A to 10 CFR 50 requires means for detecting and, to the extent practical, identifying the location of the source of RCS LEAKAGE. The RCS leakage detection systems required by this specification are provided to monitor and detect leakage from the Reactor Coolant Pressure Boundary. These detection systems are consistent with the recommendations of Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems" May 1973. Likewise, the actions implemented upon inoperability of a required leak detection instrument are sufficient in maintaining the diversity and accuracy needed to effectively detect RCS leaks.

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12 hours is provided by a footnote to allow for plant stabilization before performance of the required reactor coolant inventory balance. This provision is necessary to ensure an accurate measurement is obtained.

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~~3/4.4.6.2 REACTOR COOLANT SYSTEM LEAKAGE~~

~~Industry experience has shown that while a limited amount of leakage is expected from the RCS, the unidentified portion of this leakage can be reduced to a threshold value of less than 1 GPM. This threshold value is sufficiently low to ensure early detection of additional leakage.~~

~~The 10 GPM IDENTIFIED LEAKAGE limitation provides allowances for a limited amount of leakage from known sources whose presence will not interfere with the detection of UNIDENTIFIED LEAKAGE by the leakage detection systems.~~

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PRESSURE BOUNDARY LEAKAGE of any magnitude is unacceptable since it may be indicative of an impending gross failure of the pressure boundary. Therefore, the presence of any PRESSURE BOUNDARY LEAKAGE requires the unit to be promptly placed in COLD SHUTDOWN.

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The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

3/4.4.8 SPECIFIC ACTIVITY

The limitations on the specific activity of the primary coolant ensure that the resulting 2-hour doses at the site boundary will not exceed an appropriately small fraction of Part 100 limits following a