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2CAN030802

March 13, 2008

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

SUBJECT: License Amendment Request  
Technical Specification Changes To Relocate RCS Chemistry  
Requirements to TRM  
Arkansas Nuclear One, Unit 2  
Docket No. 50-368  
License No. NPF-6

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment for Arkansas Nuclear One, Unit 2 (ANO-2). The proposed change will relocate the Technical Specification (TS) 3.4.7, Reactor Coolant System Chemistry, to the Technical Requirements Manual (TRM). This change is consistent with the Improved Standard Technical Specifications for Combustion Engineering Plants of NUREG 1432.

The requirements for monitoring and maintaining Reactor Coolant System (RCS) chemistry limits do not meet the criteria of 10 CFR 50.36 and, therefore, are proposed for relocation to the station TRM. Changes to the TRM are controlled in accordance with the requirements of 10 CFR 50.59. The associated TS Bases, controlled in accordance with the TS Bases Control Program of TS 6.5.14, will also be relocated to the TRM. The relocation of the TS Bases is part of the ANO TS change implementation process; therefore, a markup of the TS Bases is not provided in this submittal.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that the changes involve no significant hazards consideration. The bases for these determinations are included in the attached submittal.

The proposed change does not include any new commitments.

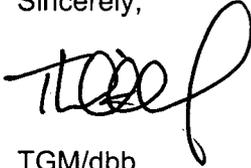
Entergy requests approval of the proposed amendment by April 1, 2009. Once approved, the amendment shall be implemented within 90 days.

A001  
NRR

If you have any questions or require additional information, please contact David Bice at 479-858-5338.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 13, 2008.

Sincerely,



TGM/dbb

Attachments:

1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)

cc: Mr. Elmo E. Collins  
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**Attachment 1**

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**Analysis of Proposed Technical Specification Change**

## 1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-6 for Arkansas Nuclear One, Unit 2 (ANO-2).

The proposed change will relocate Technical Specification (TS) 3.4.7, Reactor Coolant System Chemistry, to the ANO-2 Technical Requirements Manual (TRM). Changes to the TRM are controlled in accordance with 10 CFR 50.59. The change is consistent with NUREG 1430, Improved Standard Technical Specifications for Combustion Engineering Plants, heretofore referred to as ITS.

Note that plant-specific TSs relating to Reactor Coolant System (RCS) chemistry were not included in the original version of NUREG 1432 because this TS did not meet the TS inclusion requirements of 10 CFR 50.36.

## 2.0 PROPOSED CHANGE

ANO-2 TS 3.4.7, Reactor Coolant System Chemistry, is proposed for relocation to the ANO-2 TRM. During relocation, the current TS Actions may be modified. Such modification, if performed, will be in accordance with the requirements of 10 CFR 50.59.

Note that the proposed location results in several TS pages being deleted. Therefore, a change to TS page 3/4 4-14 is included in the attached markups to state that the "next page is..." This supporting change is administrative in nature and is not discussed further in this submittal.

## 3.0 BACKGROUND

TS 3.4.7 provides limits on the oxygen, chloride, and fluoride content in the RCS to minimize corrosion. Per the TS Bases, RCS chemistry parameters ensure that corrosion of RCS components is minimized, thus reducing the potential for RCS leakage or failure due to corrosion-based mechanisms. Maintaining the chemistry within limits provides adequate corrosion protection to ensure the structural integrity of the RCS over the life of the plant.

## 4.0 TECHNICAL ANALYSIS

RCS corrosion is a slow process which can be detected by in-service inspections or other means before significant degradation occurs. RCS chemistry is controlled to minimize corrosion over the long term. Although it is important to monitor and control RCS chemistry, limits and surveillance requirements do not meet the criteria of 10 CFR 50.36 for inclusion in the TSs. An assessment of the current RCS chemistry TS requirements against the 10 CFR 50.36 criteria is provided below.

1. The RCS chemistry limits are not installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. The RCS chemistry limits do not satisfy Criterion 1.
2. The RCS chemistry limits are not a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The RCS chemistry limits do not satisfy Criterion 2.
3. The RCS chemistry limits are not a structure, system or component that is part of the primary success path and which functions or actuates to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The RCS chemistry limits do not satisfy Criterion 3.
4. The RCS chemistry limits are not a structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. As discussed in Section 4.0, (Appendix A, page A-40) of topical report WCAP- 11618 (Reference 1), the RCS chemistry limits were found to be a non-significant risk contributor to core damage frequency and offsite releases (WCAP-11618, "Criteria Application," evaluated Limiting Conditions for Operation (LCOs) contained in TSs for Westinghouse pressurized water reactors with respect to the criteria of 10 CFR 50.36 to determine which LCOs satisfied any of the criteria).

In addition to the above, the RCS chemistry limits are not important for any scenarios modeled in the ANO-2 safety analyses. Therefore, the RCS chemistry limits do not meet Criterion 4.

Since the 10 CFR 50.36 criteria have not been met, the RCS chemistry limits LCO and associated Applicability, Actions, and Surveillances may be relocated out of the TSs. The RCS chemistry specification will be relocated to the TRM. Changes to the TRM will be controlled under the provisions of 10 CFR 50.59.

## 5.0 REGULATORY ANALYSIS

### 5.3 Applicable Regulatory Requirements/Criteria

The proposed change has been evaluated to determine whether applicable regulations and requirements continue to be met.

There are no specific General Design Criteria (GDC) associated with RCS chemistry. RCS sampling and chemistry limits are discussed in various documents, such as NUREG 0737 and Regulatory Guide 1.97. However, the proposed change does not eliminate monitoring and maintaining RCS chemistry, but only acts to relocate the requirements from the TSs to the TRM. Based on the considerations discussed above, (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 continue to be conducted in accordance with the site licensing basis, and (3) the approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

In conclusion, Entergy has determined that the proposed change does not require any exemptions or relief from regulatory requirements, other than the TS, and does not affect conformance with any GDC differently than described in the Safety Analysis Report (SAR).

## 5.2 No Significant Hazards Consideration

A change is proposed to the Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specifications (TSs) to relocate TS 3.4.7, Reactor Coolant System Chemistry, to the Technical Requirements Manual (TRM). The change is consistent with the improved standard TSs (ITS) of NUREG 1432.

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No.

The proposed change acts to relocate current Reactor Coolant System (RCS) chemistry limits and monitoring requirements from the TSs to the TRM. Monitoring and maintaining RCS chemistry minimizes the potential for corrosion of RCS piping and components. Corrosion effects are considered a long-term impact on RCS structural integrity. Because RCS chemistry will continue to be monitored and controlled, relocating the current TS requirements to the TRM will not present an adverse impact to the RCS and, subsequently, will not impact the probability or consequences of an accident previously evaluated. Furthermore, once relocated to the TRM, changes to RCS chemistry limits or monitoring requirements will be controlled in accordance with 10 CFR 50.59.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed change does not result in any plant modifications or changes in the way the plant is operated. The proposed change only acts to relocate current RCS chemistry limits and monitoring requirements from the TSs to the TRM.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

Response: No.

The proposed change will maintain limits on RCS chemistry parameters and will continue to provide associated monitoring requirements. Once relocated to the TRM, changes to RCS chemistry limits or monitoring requirements will be controlled in accordance with 10 CFR 50.59. In addition, the RCS chemistry limits are not a structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

### 5.3 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

### 6.0 PRECEDENCE

Many plants have previously relocated their respective RCS chemistry TSs to the TRM. Most occurred during conversion of the plant specific TSs to the respective ITS NUREG. This amendment was largely based on discussions noted in previous ANO-1 and North Anna conversions to ITS. Because these were major conversions and involved multiple correspondence opportunities, no specific letter number or date is referenced here.

### 7.0 REFERENCES

1. WCAP-11618, "Criteria Application," with Addendum, November 21, 1989.

**Attachment 2**

**2CAN030802**

**Proposed Technical Specification Changes (mark-up)**

## REACTOR COOLANT SYSTEM

### REACTOR COOLANT SYSTEM OPERATIONAL LEAKAGE

#### LIMITING CONDITION FOR OPERATION

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- 3.4.6.2 Reactor Coolant System operational leakage shall be limited to:
- a. No PRESSURE BOUNDARY LEAKAGE,
  - b. 1 GPM UNIDENTIFIED LEAKAGE,
  - c. 150 gallons per day primary to secondary leakage through any one steam generator (SG),
  - d. 10 GPM IDENTIFIED LEAKAGE from the Reactor Coolant System, and
  - e. Leakage as specified in Table 3.4.6-1 for those Reactor Coolant System Pressure Isolation Valves identified in Table 3.4.6.1.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With any PRESSURE BOUNDARY LEAKAGE or any primary to secondary leakage not within limit, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With any Reactor Coolant System operational leakage greater than any one of the above limits, excluding PRESSURE BOUNDARY LEAKAGE and primary to secondary leakage, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With any Reactor Coolant System Pressure Isolation Valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least two valves\* in each high pressure line having a non-functional valve and be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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\* These valves may include check valves for which the leakage rate has been verified, manual valves or automatic valves. Manual and automatic valves shall be tagged as closed to preclude inadvertent valve opening.

## REACTOR COOLANT SYSTEM

### CHEMISTRY

#### LIMITING CONDITION FOR OPERATION

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3.4.7 The Reactor Coolant System chemistry shall be maintained within the limits specified in Table 3.4-1.

APPLICABILITY: At all times.

#### ACTION:

MODES 1, 2, 3 and 4

- a. With any one or more chemistry parameter in excess of its Steady State Limit but within its Transient Limit, restore the parameter to within its Steady State Limit within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With any one or more chemistry parameter in excess of its Transient Limit, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6

With the concentration of either chloride or fluoride in the Reactor Coolant System in excess of its Steady State Limit for more than 24 hours or in excess of its Transient Limit, reduce the pressurizer pressure to  $\leq 500$  psia, if applicable, and perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation prior to increasing the pressurizer pressure above 500 psia or prior to proceeding to MODE 4.

#### SURVEILLANCE REQUIREMENTS

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4.4.7 The Reactor Coolant System chemistry shall be determined to be within the limits by analysis of those parameters at the frequencies specified in Table 4.4-3.

TABLE 3.4-1  
REACTOR COOLANT SYSTEM  
CHEMISTRY LIMITS

PARAMETER	STEADY-STATE LIMIT		TRANSIENT LIMIT
DISSOLVED OXYGEN*	$\leq 0.10$ ppm		$\leq 1.00$ ppm
CHLORIDE	$\leq 0.15$ ppm		$\leq 1.50$ ppm
FLUORIDE	$\leq 0.15$ ppm		$\leq 1.50$ ppm

\* Limit not applicable with  $T_{avg} \leq 250^\circ\text{F}$ .

TABLE 4.4-3  
REACTOR COOLANT SYSTEM  
CHEMISTRY LIMITS SURVEILLANCE REQUIREMENTS

<u>PARAMETER</u>		<u>SAMPLE AND ANALYSIS FREQUENCY</u>
DISSOLVED OXYGEN*		At least once per 72 hours
CHLORIDE		At least once per 72 hours
FLUORIDE		At least once per 72 hours

\* Not required with  $T_{avg} \leq 250^{\circ}\text{F}$