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ONS-2014-105

September 18, 2014 10 CFR 50.90

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Duke Energy Carolinas, LLC (Duke Energy)
Oconee Nuclear Station, Units 1, 2, and 3
Docket Nos. 50-269, 50-270, 50-287

Subject: License Amendment Request for Adoption of Technical Specification Task Force (TSTF) – 513, Revision 3, "Revise PWR Operability Requirements and Actions For RCS Leakage Instrumentation;" License Amendment Request No. 2011-03

In accordance with the provisions of Section 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Duke Energy is submitting a request for an amendment to the Technical Specifications (TSs) for Oconee Nuclear Station (ONS), Units 1, 2, and 3.

The proposed amendment would revise the ONS Technical Specifications to define a new time limit for restoring inoperable Reactor Coolant System (RCS) leakage detection instrumentation to operable status; establish alternate methods of monitoring RCS leakage when one or more required monitors are inoperable; and make Technical Specification Bases changes which reflect the proposed changes and more accurately reflect the contents of the facility design basis related to operability of the RCS leakage detection instrumentation. These changes are consistent with NRC-approved Revision 3 to TSTF Improved Standard Technical Specification (STS) Change Traveler TSTF-513, "Revise PWR [Pressurized Water Reactor] Operability Requirements and Actions for RCS Leakage Instrumentation." The availability of this TS improvement was announced in the *Federal Register* (76 FR 189) on January 3, 2011, as part of the consolidated line item improvement process (CLIIP).

For ONS Units 1, 2, and 3, adherence to TSTF-513 TS improvements will require the addition of containment atmosphere gaseous radioactivity monitor requirements to TS 3.4.15, "RCS Leakage Detection Instrumentation." Thus, the proposed amendment also incorporates the new requirements for a containment atmosphere gaseous radioactivity monitor into the Technical Specifications.

Included with this cover letter are as follows:

- Letter Enclosure - Evaluation of the Proposed Changes.
- Attachment 1 - Marked-Up Pages of Existing TSs to Show Proposed Changes.
- Attachment 2 - Marked-Up Pages of Existing TS Bases to Show Proposed Changes.

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- Attachment 3 - Retyped (clean) TS pages.
- Attachment 4 – Retyped (clean) TS Bases pages.

Duke Energy requests approval of the proposed LAR by September 18, 2015, with a 120 day implementation period.

In accordance with 10 CFR 50.91(a)(1), "Notice for Public Comment," the analysis about the issue of no significant hazards consideration using the standards in 10 CFR 50.92 is being provided to the Commission in accordance with the distribution requirements in 10 CFR 50.4. Also, in accordance with 10 CFR 50.91(b)(1), "State Consultation," a copy of this application and its reasoned analysis about no significant hazards considerations is being provided to the South Carolina Department of Health & Environmental Control. There are no new regulatory commitments contained in this correspondence.

If there are any questions regarding the content of this document or if additional information is needed, please contact Stephen C. Newman, Lead Engineer - Regulatory Affairs Group, Oconee Nuclear Station, at (864) 873-4388.

I declare under penalty of perjury that the foregoing is correct and true. Executed on this 18th day of September 2014.

Sincerely,

Scott L. Batson
Site Vice President
Oconee Nuclear Station

Enclosure:
Evaluation of the Proposed Changes.

Attachments:
1. Technical Specification Page Marked-Ups
2. Technical Specification Bases Page Marked-Ups
3. Retyped Technical Specification Pages
4. Retyped Technical Specification Bases Pages

xc w/enclosure/attachments:

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ENCLOSURE

EVALUATION OF THE PROPOSED CHANGES

LICENSE AMENDMENT REQUEST NO. 2011-03

Subject: Proposed License Amendment Request for the Adoption of TSTF-513, Revision 3, "Revise PWR Operability Requirements and Actions for RCS Leakage Instrumentation"

1 DESCRIPTION

The proposed amendment would revise the Technical Specifications (TSs) to define a new time limit for restoring inoperable Reactor Coolant System (RCS) leakage detection instrumentation to operable status; establish alternate methods of monitoring RCS leakage when one or more required monitors are inoperable; and make conforming TS Bases changes. These changes are consistent with NRC-approved Revision 3 to Technical Specification Task Force (TSTF) Standard Technical Specification (STS) Change Traveler TSTF-513, "Revise PWR Operability Requirements and Actions for RCS Leakage Instrumentation." The availability of this TS improvement was announced in the *Federal Register* on January 3, 2011 (76 FR 189) as part of the consolidated line item improvement process (CLIIP).

For Duke Energy Carolinas', LLC (Duke Energy) Oconee Nuclear Station, Units 1, 2, and 3 (hereafter referred to as "ONS"), adherence to TSTF-513, Revision 3 (hereafter referred to as "TSTF-513") TS improvements will require the addition of containment atmosphere gaseous radioactivity monitor requirements to TS 3.4.15, "RCS Leakage Detection Instrumentation." TS 3.4.15 requirements for a containment atmosphere gaseous radioactivity monitor were previously in the ONS Technical Specifications, but were removed, as described on the next page. Thus, the proposed changes described in this license amendment request also incorporate the new requirements for a containment atmosphere gaseous radioactivity monitor into the ONS Technical Specifications. This additional scope will bring ONS closer in-line with the STS for Babcock and Wilcox reactor plants (NUREG-1430) regarding RCS leakage detection instrumentation requirements.

2 PROPOSED CHANGES

The proposed changes that implement TSTF-513 revise and add a new Condition C to TS 3.4.15, "RCS Leakage Detection Instrumentation," and revise the associated bases. New Condition C is applicable when the containment atmosphere gaseous radioactivity monitor is the only operable TS-required monitor (i.e., all other monitors are inoperable). New Condition C Required Actions require analyzing grab samples of the containment atmosphere every 12 hours and restoring another monitor within 7 days. Additionally, the TS Bases are revised to clarify the specified safety function for each required instrument in the limiting condition for operation (LCO) Bases, delete discussion from the Bases that could be construed to alter the meaning of TS operability requirements, and reflect the changes made to TS 3.4.15.

The proposed TSTF-513 changes also correct inappropriate references to "required" equipment in TS 3.4.15. In two locations the specifications incorrectly refer to "required" containment sump level indication. The term "required" is reserved for situations in which there are multiple ways to meet the LCO, such as a requirement for either a gaseous or particulate radioactivity monitor. The incorrect use of the term "required" is removed from TS 3.4.15 Condition A.

Duke Energy is proposing variations from the TS changes described in TSTF-513 and from the NRC staff's model safety evaluation (SE) referred to in the *Federal Register* Notice published on January 3, 2011 (76 FR 189) as part of the CLIIP Notice of Availability.

The variations are necessary since:

A. ONS TS 3.4.15 does not currently contain requirements for a containment atmosphere gaseous radioactivity monitor.

The TS 3.4.15 LCO requirements for a containment atmosphere gaseous radioactivity monitor were previously in the ONS Technical Specifications, but were removed in 2007 (as approved in NRC letter dated December 19, 2007 [Reference 1]). However, the containment atmosphere gaseous radioactivity monitor removed from the Technical Specifications (i.e., RIA-49) remained in-service for operational use and continued to be maintained via the Maintenance Rule. In order for TSTF-513 to apply to ONS, the requirements for a containment atmosphere gaseous radioactivity monitor must be added to current TS 3.4.15. Thus, this license amendment request also includes TS changes to add requirements for a containment atmosphere gaseous radioactivity monitor, resulting in ONS TS 3.4.15 closer alignment to NUREG–1430. These additional TS changes are as follows:

- LCO 3.4.15.b is changed to state "One containment atmosphere radioactivity monitor (gaseous or particulate)."
- Bases Background section discussion of containment atmosphere radioactivity detection system for monitoring particulate activity is revised to include monitoring for gaseous activity also.
- Bases LCO section discussion of acceptable instruments for providing a means of diverse measurement is revised to include the containment atmosphere gaseous radioactivity monitor.
- Bases Actions B.1.1, B.1.2, and B.2 discussion of inoperable containment atmosphere radioactivity monitoring instrumentation is revised to include the containment atmosphere gaseous radioactivity monitor.

B. The required Completion Time allowed for Required Action C.1 in ONS TS 3.4.15 differs from the required Completion Time for the same Required Action specified in TSTF-513.

The required Completion Time allowed for Required Action C.1 in ONS TS 3.4.15 (i.e., 12 hours) is the standard, maximum time span specified throughout the ONS TS (i.e., TS applicable in MODES 1 and 2) for the action of placing a unit in MODE 3. NUREG–1430, Revision 3.0, upon which TSTF-513 is based, specifies a maximum time span of 6 hours to place a unit in MODE 3. However, TSTF-513 changes only re-letter the associated Required Action from "C.1" to "D.1" without changing the required Completion Time; and thus, the NRC model SE does not address the required Completion Time. ONS will maintain the 12-hour Completion Time for TS 3.4.15 to remain consistent with the remainder of the ONS Technical Specifications. This required Completion Time difference has no effect on the NRC model SE.

C. The Bases for ONS TS 3.4.15 has some differences from the (NUREG-1430, Revision 3.0) TS Bases marked-up in TSTF-513.

One of the main differences is that the TS Bases marked-up in TSTF-513 references two NRC documents, General Design Criterion (GDC) 30 of Appendix A to 10 CFR 50, issued on February 20, 1971 (as part of *Federal Register* Notice 36 FR 3256), and Regulatory Guide (RG) 1.45, issued in May, 1973, which provide regulatory requirements and guidance, respectively, for detecting RCS leakage. However, ONS was designed in the late 1960s, which pre-dated these two NRC documents. Thus, these documents were not in the original licensing basis for ONS, and therefore, not discussed in ONS TS Bases B 3.4.15. Instead, the ONS Bases specify that ONS

Design Criteria require means for detecting RCS leakage. Such design criteria are discussed in ONS Updated Final Safety Analysis Report (UFSAR) Section 3.1.

A second difference between the ONS TS Bases and the TSTF-513 Bases is the lack of discussion in the Background section of the ONS TS Bases B 3.4.15 involving sump alarm features and containment humidity levels. The ONS Bases do not have such discussions since the subject parameters are not monitored for RCS leakage detection at ONS (Reference 2). However, since the NRC model SE does not discuss sump alarm features and only mentions "humidity" in quoted text from RG 1.45, Revision 0, this difference has no effect on the NRC model SE.

Other differences between the ONS TS Bases B 3.4.15 and the TSTF-513 Bases are minor in nature and ONS-specific (i.e., use of the term "unit" instead of "plant" and "level indication" instead of "monitor"). Therefore, such differences are justified and will remain in ONS TS Bases B 3.4.15. These differences have no effect on the NRC model SE.

D. Duke Energy also intends to add a clarification phrase in the ONS TS Bases B 3.4.15 to ensure plant operators correctly interpret re-lettered Action Condition E. The Bases discussion for re-lettered Action Condition E will be modified by the addition of the phrase "(normal sump level indication and containment atmosphere radioactivity monitor)" directly following the word "instruments" in the first line of text. This added clarification phrase has no effect on the NRC model SE.

Based on the above discussions of Duke Energy's proposed variations from the TS changes described in TSTF-513, the NRC model SE for TSTF-513 implementation is affected by, and requires modification for, the following variations:

- Addition of a containment atmosphere gaseous radioactivity monitor to LCO 3.4.15.b.
- Addition of discussion of containment atmosphere gaseous radioactivity monitoring in the Bases Background, LCO and Actions sections.
- The extent that ONS complies with GDC 30 and RG 1.45.

Even though Duke Energy is proposing variations to TSTF-513 implementation for ONS, it is Duke Energy's intent to adhere to the TS changes described in TSTF-513 as close as materially possible.

Markups showing the proposed changes to the TS pages and TS Bases pages affected by the proposed changes are provided in Attachments 1 and 2, respectively. Retyped (clean) TS pages and TS Bases pages are provided in Attachments 3 and 4, respectively.

3 BACKGROUND

NRC Information Notice (IN) 2005-24, "Nonconservatism in Leakage Detection Sensitivity," dated August 3, 2005, informed addressees that the reactor coolant activity assumptions for primary containment atmosphere gaseous radioactivity monitors may be non-conservative. This means the monitors may not be able to detect a one gallon per minute leak within one hour. Some licensees have taken action in response to IN 2005-24 to remove the gaseous radioactivity monitor from the Technical Specification list of required monitors. Duke Energy performed this action for ONS in 2007 (Reference 1). However, industry experience has shown that the primary containment atmosphere gaseous radioactivity monitor is often the first monitor to indicate an increase in RCS leak rate. As a result, the TSTF and the NRC staff met on April 29, 2008, and April 14, 2009, to develop an alternative approach to

address the issue identified in IN 2005-24. The agreed solution is to retain the primary containment atmosphere gaseous radioactivity monitor in the LCO list of required equipment, revise the specified safety function of the gas monitor to specify the required instrument sensitivity level, revise the Actions to require additional monitoring, and provide less time before a plant shutdown is required when the primary containment atmosphere gaseous radioactivity monitor is the only operable monitor. Therefore, Duke Energy is requesting in this license amendment request to add requirements for the containment atmosphere gaseous radioactivity monitor back into TS 3.4.15 and to implement the TS changes specified in TSTF-513 as they apply to ONS.

4 TECHNICAL ANALYSIS

Duke Energy has reviewed TSTF-513, Revision 3, and the model SE published on January 3, 2011 (76 FR 189) as part of the CLIIP Notice of Availability. Duke Energy has concluded that, with the addition of requirements for a containment atmosphere gaseous radioactivity monitor back into TS 3.4.15, the technical bases presented in TSTF Traveler-513, Revision 3, and the model SE prepared by the NRC staff (modified to incorporated the Duke Energy proposed variations listed near the end of Section 2) are applicable to ONS.

The proposed amendment revises TS LCO 3.4.15.b to allow either a containment atmosphere gaseous radioactivity monitor or a containment atmosphere particulate radioactivity monitor to be a means of detecting RCS leakage. Although the proposed TS LCO will be less restrictive than the current TS LCO, it more closely conforms to the NRC-approved Standard Technical Specifications for Babcock and Wilcox reactor plants (NUREG-1430). The proposed amendment revises the TS Bases to include the addition of a containment atmosphere gaseous radioactivity monitor into TS 3.4.15 and revises the language in the TS Bases that describes when the gaseous and particulate containment atmosphere radioactivity monitors are operable. The proposed amendment requires additional batch or manual RCS leakage monitoring to be performed when the added primary containment atmosphere gaseous radioactivity monitor is the only operable continuous or automatic monitor. These alternative batch methods provide an RCS leakage detection capability similar to the TS-required methods. The grab sample has an RCS leakage detection capability that is comparable to that of the containment particulate radioactivity monitor. The proposed Actions and Completion Times for grab samples are adequate because use of frequent grab samples provides additional assurance (in addition to the mass balances required by Conditions A and B) that any significant RCS leakage will be detected prior to significant reactor coolant pressure boundary (RCPB) degradation.

The plant licensing basis for ONS relative to conformance with NRC design criteria is discussed in UFSAR Section 3.1, "Conformance with NRC General Design Criteria." The ONS Units 1, 2, and 3 construction permits (all issued on November 6, 1967) preceded the issuance of approved GDC (issued on February 20, 1971) specified in 10 CFR 50 Appendix A. Thus, the principal design criteria for ONS were developed in consideration of the seventy (70) proposed General Design Criteria for Nuclear Power Plant Construction Permits issued by the Atomic Energy Commission (AEC) in a proposed rule-making published for 10 CFR 50 in the *Federal Register* on July 11, 1967. UFSAR Section 3.1.16 specifies that the RCS leakage detection instrumentation for ONS was designed to meet 1967-proposed GDC 16, "Monitoring Reactor Coolant Pressure Boundary," which simply states "Means shall be provided for monitoring the reactor coolant pressure boundary to detect leakage." Therefore, 1971-approved GDC 30, "Quality of reactor coolant pressure

boundary," is not part of the ONS licensing basis. However, ONS does meet the intent of the portion of GDC 30 which specifies a means shall be provided for detecting reactor coolant leakage.

5 REGULATORY SAFETY ANALYSIS

5.1 NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Duke Energy Carolina, LLC (Duke Energy), has evaluated the proposed changes to the Oconee Nuclear Station (ONS) Technical Specifications (TSs) using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration. An analysis of the issue of no significant hazards consideration is presented below:

Description of Amendment Request: The proposed amendment would revise TS 3.4.15, "RCS Leakage Detection Instrumentation" Limiting Conditions for Operation, Conditions and Required Actions and add the licensing basis for the gaseous radioactivity monitor, as well as make associated changes to TS Bases B 3.4.15.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the Duke Energy analysis of the issue of no significant hazards consideration using the standards in 10 CFR 50.92 is presented 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 modifies the operability requirements for the Reactor Coolant System (RCS) leakage detection instrumentation to include a containment atmosphere gaseous radioactivity monitor and incorporates a reduction in the time allowed for the plant to operate when the only TS-required operable RCS leakage detection instrumentation monitor is the containment atmosphere gaseous radioactivity monitor. Accidents described in the ONS Updated Final Safety Analysis Report involving RCS leakage are both small and large breaks in reactor coolant pressure boundary (RCPB) piping. Such accidents already assume RCPB leakage (i.e., gross leakage). Thus, any change to Technical Specifications involving equipment that monitor RCPB leakage is not a precursor to any accident previously evaluated. In addition, any change to Technical Specifications involving equipment that monitor RCPB leakage is not used to mitigate the consequences of any accident previously evaluated. Therefore, it is concluded that 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 modifies the operability requirements for the RCS leakage detection instrumentation to include a containment atmosphere gaseous radioactivity monitor and incorporates a reduction in the time allowed for the plant to operate when the only TS-required operable RCS leakage detection instrumentation monitor is the containment atmosphere gaseous radioactivity monitor. The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The proposed change maintains sufficient continuity and diversity of leak detection capability that the probability of piping evaluated and approved for Leak-Before-Break progressing to pipe rupture remains extremely low. Therefore, it is concluded that 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 modifies the operability requirements for the RCS leakage detection instrumentation to include a containment atmosphere gaseous radioactivity monitor and incorporates a reduction in the time allowed for the plant to operate when the only TS-required operable RCS leakage detection instrumentation monitor is the containment atmosphere gaseous radioactivity monitor. By adding the option of utilizing a containment atmosphere gaseous radioactivity monitor in place of the existing containment atmosphere particulate radioactivity monitor, ONS more closely conforms to NUREG-1430, Revision 3.0 TS limiting conditions for operation requirements for RCS leakage detection instrumentation. Since NUREG-1430 is an NRC-controlled document, the reduction in margin of safety for adding the option of utilizing a containment atmosphere gaseous radioactivity monitor in place of the existing containment atmosphere particulate radioactivity monitor is acceptable to the NRC and not considered significant. The reduced amount of time the plant is allowed to operate with only the containment atmosphere gaseous radioactivity monitor operable increases the margin of safety by increasing the likelihood that an increase in RCS leakage will be detected before it potentially results in gross failure. Therefore, it is concluded that the proposed change does not involve a significant reduction in a margin of safety.

Based upon the above analysis, Duke Energy concludes that the requested change does not involve a significant hazards consideration, as set forth in 10 CFR 50.92(c), "Issuance of Amendment."

5.2 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA

A description of the proposed TS change and its relationship to applicable regulatory requirements were published in the *Federal Register* Notice of Availability on January 3, 2011 (76 FR 189). Duke Energy has reviewed the NRC staff's model SE referenced in the CLIIP Notice of Availability and concluded that the regulatory evaluation section is not applicable to ONS. The regulatory requirements that apply to this LAR, and how ONS satisfies the requirements, are provided in the following table.

Regulatory Requirements/Criteria	**How Satisfied**
10 CFR 50.36 - The TS requirements shall include the following categories: (1) safety limits, limiting safety systems settings and control settings, (2) limiting conditions for operation (LCOs), (3) surveillance requirements, (4) design features, and (5) administrative controls.	LCOs and surveillance requirements for RCS Leakage Detection Instrumentation are still provided in revised TS 3.4.15.
10 CFR 50.59(c)(1)(i) - a licensee is required to submit a license amendment pursuant to 10 CFR 50.90, "Application for amendment of license or construction permit," if a change to the TS is required. Furthermore, the requirements of 10 CFR 50.59 necessitate that the NRC approve the TS changes before the TS changes are implemented.	This LAR meets the requirements of 10 CFR 50.59(c)(1)(i) and 10 CFR 50.90.
1967 Atomic Energy Commission (AEC)-proposed General Design Criterion 16 - Means shall be provided for monitoring the reactor coolant pressure boundary to detect leakage.	Revised TS 3.4.15 LCO requires monitoring of reactor coolant pressure boundary leakage via containment normal sump level indication, and containment atmosphere particulate or gaseous radioactivity monitors.

The plant licensing basis for ONS relative to conformance with NRC design criteria is discussed in UFSAR Section 3.1. Since the ONS construction permits (all issued in November 1967) preceded the issuance of approved General Design Criteria (Appendix A to 10 CFR Part 50, issued February 1971), the principal design criteria for ONS were developed considering the 70 proposed General Design Criteria (GDC) issued by the AEC in July 1967. Thus, as discussed in UFSAR Section 3.1.16, the RCS leakage detection instrumentation for ONS was designed to meet AEC-proposed GDC 16, "Monitoring Reactor Coolant Pressure Boundary," not 1971-approved GDC 30, "Quality of reactor coolant pressure boundary." AEC-proposed GDC 16 states "Means shall be provided for monitoring the reactor coolant pressure boundary to detect leakage." The design of ONS allows for a variety of methods to be utilized by control room personnel for monitoring of RCPB leakage as specified in this UFSAR section.

For non-rupture RCPB leakage, these methods include surveillance of variation from normal conditions for:

- Reactor Building temperature and sump level.
- Reactor Building radioactivity levels.
- Condenser off-gas radioactivity levels and Main Steam line monitors (to detect steam generator tube leakage).
- Decreasing letdown storage tank water level (indicating system leakage).

The 1971-approved GDC 30 contains more requirements than just means to monitor the RCPB to detect leakage. Although not specifically designed to meet GDC 30, ONS, through its meeting the requirement of AEC-proposed GDC 16, meets the intent of the portion of GDC 30 which states "Means shall be provided for detecting . . . reactor coolant leakage."

Similar to GDC 30, ONS design criteria considerations also pre-dated issuance of Regulatory Guide (RG) 1.45, Revision 0 (issued May 1973). Thus, conformance with the regulatory guidance specified in RG 1.45, Revision 0 was not part of the ONS original licensing basis. Regulatory Position C.5 of RG 1.45 states that the sensitivity and response time of each leakage detection system employed for unidentified leakage should be adequate to detect an RCPB leakage rate, or its equivalent, of one gallon-per-minute (gpm) in less than one hour. While not committed to RG 1.45 as part of the original licensing basis, ONS has credited the capability to meet a 'one-gpm-within-one-hour' RCPB leak detection performance criterion in analyses submitted and approved in support of the licensing position commonly referred to as "leak-before-break (LBB)" (Reference 3). The underlying premise of LBB is that high-energy piping systems are designed, constructed, and inspected such that any flaws in the piping welds would produce a detectable leak and result in plant shutdown long before the flaw could propagate to the extent that a catastrophic failure of the RCPB would occur. This position has, in turn, been used to support licensing actions related to various ONS activities such as Steam Generator Replacement modifications, Mark B Fuel design, Low Pressure Injection System modifications, and Reactor Building Emergency Sump strainer replacement modifications (References 3 - 7). Thus, the current licensing basis for ONS requires RCS leakage detection instrumentation to be capable of detecting a one gpm leak rate within one hour which is consistent with RG 1.45 regulatory guidance.

6 ENVIRONMENTAL CONSIDERATION

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, and would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change 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 change.

7 REFERENCES

1. NRC Letter dated December 19, 2007, "Oconee Nuclear Station, Units 1, 2, and 3, Issuance of Amendments Regarding Removal of the Gaseous Radioactive Monitor from the Technical Specifications (TAC NOS. MD4041, MD4042, and MD4043)" (ADAMS Accession No. ML073241009).

2. NUREG-1723, "Safety Evaluation Report Related to the License Renewal of Oconee Nuclear Station, Units 1, 2, and 3," Section 3.2.7, "Reactor Coolant System Operational Leakage Monitoring."

3. Oconee Nuclear Station Updated Final Safety Analysis Report, Section 5.2.1.9, "Leak Before Break."

4. Oconee Nuclear Station Updated Final Safety Analysis Report, Section 3.6.1.2.1, "Core Flood/Low Pressure Injection System."

5. Oconee Nuclear Station Updated Final Safety Analysis Report, Section 3.9.2.4, "Dynamic System Analysis of the Reactor Internals Under Faulted Conditions (Reference 19)."

6. Oconee Nuclear Station Updated Final Safety Analysis Report, Section 5.4.8.6, "LOCA Restraints."

7. Oconee Nuclear Station Updated Final Safety Analysis Report, Section 6.3.1, [Emergency Core Cooling System] "Design Bases."

ATTACHMENT 1

Technical Specification Page Mark-Ups

[3 pages following this cover page]

NOTE: Attached are markups of existing TS 3.4.15 pages which incorporate the changes described in the Letter Enclosure.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment normal sump level indication; and

b. One containment atmosphere ~~particulate~~ radioactivity monitor.

Insert:
"(gaseous or particulate)"

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~Required~~ containment sump level indication inoperable.	A.1 ----------NOTE---------- Not required until 12 hours after establishment of steady state operation. ---------- Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	A.2 Restore ~~required~~ containment sump level indication to OPERABLE status.	30 days

Capitalize "c"

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required containment atmosphere radioactivity monitor *inoperable*.	B.1.1	Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR		
	B.1.2	----------NOTE---------- Not required until 12 hours after establishment of steady state operation. ----------	
		Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	B.2	Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 5.	36 hours
D. Both required instrument functions *inoperable*.	D.1	Enter LCO 3.0.3.	Immediately

Insert new Action C from Insert A

Change "C" to "D"

Change "D" to "E"

Insert A

----------NOTE---------- Only applicable when the containment atmosphere gaseous radiation monitor is the only OPERABLE monitor. ----------	C.1	Analyze grab samples of the containment atmosphere.	Once per 12 hours
	<u>AND</u>		
C. Containment sump level indication inoperable.	C.2	Restore containment sump level indication to OPERABLE status.	7 days

ATTACHMENT 2

Technical Specification Bases Page Mark-Ups

[8 pages following this cover page]

NOTE: Attached are markups of existing TS Bases B 3.4.15 pages which incorporate the changes described in the Letter Enclosure.

Insert: "Although ONS is not committed to Regulatory Guide 1.45, Revision 0 (Ref. 2) of the RG describes acceptable methods for setting leakage detection systems."

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.15 RCS Leakage Detection Instrumentation

BASES

BACKGROUND ONS Design Criteria (Ref. 1) requires means for detecting RCS LEAKAGE.

Leakage detection systems must have the capability to detect significant reactor coolant pressure boundary (RCPB) degradation as soon after occurrence as practical to minimize the potential for propagation to a gross failure. Thus, an early indication or warning signal is necessary to permit proper evaluation of all unidentified LEAKAGE.

Add Insert B

~~Industry practice has shown that water flow changes of 0.5 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.~~

Change "can" to "may"

The reactor coolant contains radioactivity that, when released to the containment, ~~can~~ may be detected by radiation monitoring instrumentation. ~~Reactor coolant radioactivity levels will be low during initial reactor startup and for a few weeks thereafter until activated corrosion products have been formed and fission products appear from fuel element cladding contamination or cladding defects. An instrument sensitivity of 10^{-9} μCi/cc radioactivity for particulate monitoring is practical for this leakage detection system.~~ A radioactivity detection system is included for monitoring particulate activity because of its sensitivity and rapid response to RCS LEAKAGE.

Reword this sentence per Insert C

Add Insert D as new paragraph

Air temperature and pressure monitoring methods may also be used to infer unidentified LEAKAGE to the containment. Containment temperature and pressure fluctuate slightly during unit operation, but a rise above the normally indicated range of values may indicate RCS LEAKAGE into the containment. The relevance of temperature and pressure measurements ~~are~~ is affected by containment free volume and, for temperature, detector location. Signals from these instruments can be valuable in recognizing rapid and sizable leakage to the containment. Temperature and pressure monitors are not required by this LCO.

Change "are" to "is"

Add Insert E as new paragraph

Insert B

In addition to meeting the OPERABILITY requirements, the monitors are typically set to provide the most sensitive response without causing an excessive number of spurious alarms.

Insert C

Radioactivity detection systems are included for monitoring both particulate and gaseous activities because of their sensitivities and rapid responses to RCS LEAKAGE.

Insert D

Other indications may be used to detect an increase in unidentified LEAKAGE; however, they are not required to be OPERABLE by this LCO.

Insert E

[New paragraph]

The above-mentioned LEAKAGE detection methods or systems differ in sensitivity and response time. Some of these systems could serve as early alarm systems signaling the operators that closer examination of other detection systems is necessary to determine the extent of any corrective action that may be required.

BASES (continued)

APPLICABLE SAFETY ANALYSES

The need to evaluate the severity of an alarm or an indication is important to the operators, and the ability to compare and verify with indications from other systems is necessary.

The safety significance of RCS LEAKAGE varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring reactor coolant LEAKAGE into the containment area are necessary. Separating the identified LEAKAGE from the unidentified LEAKAGE provides quantitative information to the operators, allowing them to take corrective action should a leak occur detrimental to the safety of the unit and the public.

RCS leakage detection instrumentation satisfies Criterion 1 of 10 CFR 50.36 ~~(Ref. 2)~~.

Change "leaks" to "amounts of unidentified LEAKAGE"

LCO

~~One method of protecting against large RCS LEAKAGE derives from the ability of instruments to rapidly detect small leaks.~~ This LCO requires instruments of diverse monitoring principles to be OPERABLE to provide ~~a high degree of~~ confidence that small ~~leaks~~ are detected in time to allow actions to place the unit in a safe condition when RCS LEAKAGE indicates possible RCPB degradation.

Add Insert F as new paragraph

Change "OPERABLE" to "available"

The LCO requirements are satisfied when instruments of diverse measurement means are ~~OPERABLE~~. Thus, the containment normal sump level indication, in combination with a particulate (RIA-47) radioactivity monitor, provides an acceptable minimum.

Add "or gaseous (RIA-49)"

APPLICABILITY

Because of elevated RCS temperature and pressure in MODES 1, 2, 3, and 4, RCS leakage detection instrumentation is required to be OPERABLE.

In MODE 5 or 6, the temperature is ≤ 200EF and pressure is maintained low or at atmospheric pressure. Since the temperatures and pressures are far lower than those for MODES 1, 2, 3, and 4, the likelihood of leakage and crack propagation is much smaller. Therefore, the requirements of this LCO are not applicable in MODES 5 and 6.

Typo correction – Change "200EF" to "200°F"

Insert F:

[New paragraphs]

The LCO requires two instruments of diverse monitoring principles (sump level indication and atmosphere radioactivity monitoring) to be OPERABLE.

The containment sump is used to collect unidentified LEAKAGE. The containment sump consists of the normal sump and the emergency sump. The LCO requirements apply to the total amount of unidentified LEAKAGE collected in the normal sump. The monitor on the containment sump detects level and is instrumented to detect when there is leakage of 1 gpm. The identification of an increase in unidentified LEAKAGE will be delayed by the time required for the unidentified LEAKAGE to travel to the containment sump and it may take longer than one hour to detect a 1 gpm increase in unidentified LEAKAGE, depending on the origin and magnitude of the LEAKAGE. This sensitivity is acceptable for containment sump monitor OPERABILITY.

The reactor coolant contains radioactivity that, when released to the containment, may be detected by the gaseous or particulate containment atmosphere radioactivity monitor. Only one of the two detectors is required to be OPERABLE. Radioactivity detection systems are included for monitoring both particulate and gaseous activities because of their sensitivities and rapid responses to RCS LEAKAGE, but have recognized limitations. Reactor coolant radioactivity levels will be low during initial reactor startup and for a few weeks thereafter, until activated corrosion products have been formed and fission products appear from fuel element cladding contamination or cladding defects. If there are few fuel element cladding defects and low levels of activation products, it may not be possible for the gaseous or particulate containment atmosphere radioactivity monitors to detect a 1 gpm increase within 1 hour during normal operation. However, the gaseous or particulate containment atmosphere radioactivity monitor is OPERABLE when it is capable of detecting a 1 gpm increase in unidentified LEAKAGE within 1 hour given an RCS activity equivalent to that assumed in the design calculations for the monitors (Ref. 3).

Change "radiation" to "radioactivity"

BASES (continued)

ACTIONS

The Actions are modified by a Note indicating that the provisions of LCO 3.0.4 do not apply. As a result, a MODE change is allowed when the normal sump level indication and required ~~radiation~~ monitor are inoperable. This allowance is provided because other instrumentation is available to monitor RCS LEAKAGE.

Change "atmosphere" to "containment atmosphere radioactivity"

A.1 and A.2

With the ~~required~~ containment normal sump level indication inoperable, no other form of sampling can provide the equivalent information.

However, the containment atmosphere activity monitor will provide indications of changes in leakage. Together with the ~~atmosphere~~ monitor, the periodic surveillance for RCS inventory balance, SR 3.4.13.1, water inventory balance, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after steady state operation (stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

Change "the monitor's" to "level indication"

Restoration of the ~~required~~ normal sump level indication to OPERABLE status is required to regain the function in a Completion Time of 30 days after ~~the monitor's~~ failure. This time is acceptable considering the frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

Change "the" to "required gaseous or"

B.1.1, B.1.2, and B.2

With ~~the~~ particulate containment atmosphere radioactivity monitoring instrumentation channel inoperable, alternative action is required. Either grab samples of the containment atmosphere must be taken and analyzed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. With a sample obtained and analyzed or a water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of the radioactivity monitor. ~~(RIA-47)~~

BASES

ACTIONS B.1.1, B.1.2, and B.2 (continued)

The 24 hour interval for SR 3.4.13.1 provides periodic information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after steady state operation (stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. The 30 day Completion Time recognizes at least one other form of leak detection is available.

Add Insert G as new paragraph

Change "C.1 and C.2" to "D.1 and D.2"

Change "A or B" to "A, B, or C"

~~C.1 and C.2~~

If a Required Action of Condition ~~A or B~~ cannot be met within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours and to MODE 5 within 36 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.

Change "D.1" to "E.1"

~~D.1~~

If both required leakage detection instruments are inoperable, no automatic means of monitoring leakage are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS SR 3.4.15.1

Add "(normal sump level indication and containment atmosphere radioactivity monitor)"

SR 3.4.15.1 requires the performance of a CHANNEL CHECK of the required containment atmosphere radioactivity monitor. The check gives reasonable confidence that ~~the~~ channel is operating properly. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

Change "the" to "each"

Insert G:

C.1 and C.2

With containment normal sump level indication inoperable, the only means of detecting LEAKAGE is the required containment atmosphere radioactivity monitor. A Note clarifies that this Condition is applicable when the only OPERABLE monitor is the containment atmosphere gaseous radioactivity monitor. The containment atmosphere gaseous radioactivity monitor typically cannot detect a 1 gpm leak within one hour when RCS activity is low. In addition, this configuration does not provide the required diverse means of leakage detection. Indirect methods of monitoring RCS leakage must be implemented. Grab samples of the containment atmosphere must be taken and analyzed to provide alternate periodic information. The 12 hour interval is sufficient to detect increasing RCS leakage. The Required Action provides 7 days to restore another RCS leakage monitor to OPERABLE status to regain the intended leakage detection diversity. The 7 day Completion Time ensures that the unit will not be operated in a degraded configuration for a lengthy time period.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.15.2

SR 3.4.15.2 requires the performance of a CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor. The test ensures that the monitor can perform its function in the desired manner. The test verifies the alarm setpoint and relative accuracy of the instrument string.

SR 3.4.15.3 and SR 3.4.15.4

These SRs require the performance of a CHANNEL CALIBRATION for each of the required RCS leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section ~~3.1.~~
2. ~~10 CFR 50.36.~~

Change "3.1" to "3.1.16, 'Criterion 16 – Monitoring Reactor Coolant Pressure Boundary (Category B).'"

Change "10 CFR 50.36" to "Regulatory Guide 1.45, Revision 0, 'Reactor Coolant Pressure Boundary Leakage Detection System,' May 1973."

Add new Reference 3 as follows:

"3. UFSAR, Section 5.2.3.10.5, "Leak Detection."

ATTACHMENT 3

Retyped Technical Specification Pages

[3 pages following this cover page]

NOTE: Attached are clean, retyped TS Pages 3.4.15-1, -2 and -3.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment normal sump level indication; and

b. One containment atmosphere radioactivity monitor (gaseous or particulate).

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Containment sump level indication inoperable.	A.1	----------NOTE---------- Not required until 12 hours after establishment of steady state operation. ---------- Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	A.2	Restore containment sump level indication to OPERABLE status.	30 days

(continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the containment atmosphere. OR B.1.2 ----------NOTE---------- Not required until 12 hours after establishment of steady state operation. ---------- Perform SR 3.4.13.1. AND B.2 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	Once per 24 hours Once per 24 hours 30 days
C. --------NOTE---------- Only applicable when the containment atmosphere gaseous radiation monitor is the only OPERABLE monitor. ---------- Containment sump level indication inoperable.	C.1 Analyze grab samples of the containment atmosphere. AND C.2 Restore containment sump level indication to OPERABLE status.	Once per 12 hours 7 days
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	12 hours 36 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Both required instrument functions inoperable.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.3	Perform CHANNEL CALIBRATION of required containment sump level indication.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.4	Perform CHANNEL CALIBRATION of required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program

ATTACHMENT 4

Retyped Technical Specification Bases Pages

[6 pages following this cover page]

NOTE: Attached are clean, retyped TS Bases Pages B 3.4.15-1 through B 3.4.15-6.

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.15 RCS Leakage Detection Instrumentation

BASES

BACKGROUND

ONS Design Criteria (Ref. 1) requires means for detecting RCS LEAKAGE. Although ONS is not committed to Regulatory Guide 1.45, Revision 0 (Ref. 2) describes acceptable methods for setting leakage detection systems.

Leakage detection systems must have the capability to detect significant reactor coolant pressure boundary (RCPB) degradation as soon after occurrence as practical to minimize the potential for propagation to a gross failure. Thus, an early indication or warning signal is necessary to permit proper evaluation of all unidentified LEAKAGE. In addition to meeting the OPERABILITY requirements, the monitors are typically set to provide the most sensitive response without causing an excessive number of spurious alarms.

The reactor coolant contains radioactivity that, when released to the containment, may be detected by radiation monitoring instrumentation. Radioactivity detection systems are included for monitoring both particulate and gaseous activities because of their sensitivities and rapid responses to RCS LEAKAGE.

Other indications may be used to detect an increase in unidentified LEAKAGE; however, they are not required to be OPERABLE by this LCO. Air temperature and pressure monitoring methods may be used to infer unidentified LEAKAGE to the containment. Containment temperature and pressure fluctuate slightly during unit operation, but a rise above the normally indicated range of values may indicate RCS LEAKAGE into the containment. The relevance of temperature and pressure measurements is affected by containment free volume and, for temperature, detector location. Signals from these instruments can be valuable in recognizing rapid and sizable leakage to the containment. Temperature and pressure monitors are not required by this LCO.

The above-mentioned LEAKAGE detection methods or systems differ in sensitivity and response time. Some of these systems could serve as early alarm systems signaling the operators that closer examination of other detection systems is necessary to determine the extent of any corrective action that may be required.

BASES (continued)

APPLICABLE SAFETY ANALYSES

The need to evaluate the severity of an alarm or an indication is important to the operators, and the ability to compare and verify with indications from other systems is necessary.

The safety significance of RCS LEAKAGE varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring reactor coolant LEAKAGE into the containment area are necessary. Separating the identified LEAKAGE from the unidentified LEAKAGE provides quantitative information to the operators, allowing them to take corrective action should a leak occur detrimental to the safety of the unit and the public.

RCS leakage detection instrumentation satisfies Criterion 1 of 10 CFR 50.36.

LCO

This LCO requires instruments of diverse monitoring principles to be OPERABLE to provide confidence that small amounts of unidentified LEAKAGE are detected in time to allow actions to place the unit in a safe condition when RCS LEAKAGE indicates possible RCPB degradation.

The LCO requires two instruments of diverse monitoring principles (sump level indication and atmosphere radioactivity monitoring) to be OPERABLE.

The containment sump is used to collect unidentified LEAKAGE. The containment sump consists of the normal sump and the emergency sump. The LCO requirements apply to the total amount of unidentified LEAKAGE collected in the normal sump. The monitor on the containment sump detects level and is instrumented to detect when there is leakage of 1 gpm. The identification of an increase in unidentified LEAKAGE will be delayed by the time required for the unidentified LEAKAGE to travel to the containment sump and it may take longer than one hour to detect a 1 gpm increase in unidentified LEAKAGE, depending on the origin and magnitude of the LEAKAGE. This sensitivity is acceptable for containment sump monitor OPERABILITY.

The reactor coolant contains radioactivity that, when released to the containment, may be detected by the gaseous or particulate containment atmosphere radioactivity monitor. Only one of the two detectors is required to be OPERABLE. Radioactivity detection systems are included for monitoring both particulate and gaseous activities because of their sensitivities and rapid responses to RCS LEAKAGE, but have recognized limitations. Reactor coolant radioactivity levels will be low during initial reactor startup and for a few weeks thereafter, until activated corrosion products have been formed and fission products appear from fuel element cladding contamination or cladding defects. If there are few fuel element cladding defects and low levels of activation products, it may not be

BASES (continued)

LCO (continued) possible for the gaseous or particulate containment atmosphere radioactivity monitors to detect a 1 gpm increase within 1 hour during normal operation. However, the gaseous or particulate containment atmosphere radioactivity monitor is OPERABLE when it is capable of detecting a 1 gpm increase in unidentified LEAKAGE within 1 hour given an RCS activity equivalent to that assumed in the design calculations for the monitors (Ref. 3).

The LCO requirements are satisfied when instruments of diverse measurement means are available. Thus, the containment normal sump level indication, in combination with a particulate (RIA-47) or gaseous radioactivity monitor (RIA-49), provides an acceptable minimum.

APPLICABILITY Because of elevated RCS temperature and pressure in MODES 1, 2, 3, and 4, RCS leakage detection instrumentation is required to be OPERABLE.

In MODE 5 or 6, the temperature is $\leq$ 200°F and pressure is maintained low or at atmospheric pressure. Since the temperatures and pressures are far lower than those for MODES 1, 2, 3, and 4, the likelihood of leakage and crack propagation is much smaller. Therefore, the requirements of this LCO are not applicable in MODES 5 and 6.

ACTIONS The Actions are modified by a Note indicating that the provisions of LCO 3.0.4 do not apply. As a result, a MODE change is allowed when the normal sump level indication and required radioactivity monitor are inoperable. This allowance is provided because other instrumentation is available to monitor RCS LEAKAGE.

A.1 and A.2

With the containment normal sump level indication inoperable, no other form of sampling can provide the equivalent information.

However, the containment atmosphere activity monitor will provide indications of changes in leakage. Together with the containment atmosphere radioactivity monitor, the periodic surveillance for RCS inventory balance, SR 3.4.13.1, water inventory balance, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after steady state operation (stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and

BASES (continued)

ACTIONS

A.1 and A.2 (continued)

process all necessary data after stable plant conditions are established.

Restoration of the normal sump level indication to OPERABLE status is required to regain the function in a Completion Time of 30 days after level indication failure. This time is acceptable considering the frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

B.1.1, B.1.2, and B.2

With required gaseous or particulate containment atmosphere radioactivity monitoring instrumentation channel inoperable, alternative action is required. Either grab samples of the containment atmosphere must be taken and analyzed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. With a sample obtained and analyzed or a water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of the radioactivity monitor.

The 24 hour interval for SR 3.4.13.1 provides periodic information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after steady state operation (stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. The 30 day Completion Time recognizes at least one other form of leak detection is available.

C.1 and C.2

With containment normal sump level indication inoperable, the only means of detecting LEAKAGE is the required containment atmosphere radioactivity monitor. A Note clarifies that this Condition is applicable when the only OPERABLE monitor is the containment atmosphere gaseous radioactivity monitor. The containment atmosphere gaseous radioactivity monitor typically cannot detect a 1 gpm leak within one hour when RCS activity is low. In addition, this configuration does not provide the required diverse means of leakage detection. Indirect methods of monitoring RCS leakage must be implemented. Grab samples of the containment atmosphere must be taken and analyzed to provide alternate periodic information. The 12 hour interval is sufficient to detect increasing RCS leakage. The Required Action provides 7 days to restore another RCS

BASES (continued)

ACTIONS

C.1 and C.2 (continued)

leakage monitor to OPERABLE status to regain the intended leakage detection diversity. The 7 day Completion Time ensures that the unit will not be operated in a degraded configuration for a lengthy time period.

D.1 and D.2

If a Required Action of Condition A, B or C cannot be met within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours and to MODE 5 within 36 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.

E.1

If both required leakage detection instruments (normal sump level indication and containment atmosphere radioactivity monitor) are inoperable, no automatic means of monitoring leakage are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

SR 3.4.15.1

SR 3.4.15.1 requires the performance of a CHANNEL CHECK of the required containment atmosphere radioactivity monitor. The check gives reasonable confidence that each channel is operating properly. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

SR 3.4.15.2

SR 3.4.15.2 requires the performance of a CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor. The test ensures that the monitor can perform its function in the desired manner. The test verifies the alarm setpoint and relative accuracy of the instrument string.

BASES (continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.15.3 and SR 3.4.15.4

These SRs require the performance of a CHANNEL CALIBRATION for each of the required RCS leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 3.1.16, "Criterion 16 – Monitoring Reactor Coolant Pressure Boundary (Category B)."

2. Regulatory Guide 1.45, Revision 0, "Reactor Coolant Pressure Boundary Leakage Detection System," May 1973.

3. UFSAR, Section 5.2.3.10.5, "Leak Detection."