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CENG
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CALVERT CLIFFS
NUCLEAR POWER PLANT

March 22, 2011

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
License Amendment Request for Adoption of Technical Specification Task Force (TSTF)-513, Revision 3, "Revise PWR Operability Requirements and Actions for RCS Leakage Instrumentation"

In accordance with the provisions of Section 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Calvert Cliffs Nuclear Power Plant, LLC (Calvert Cliffs) is submitting a request for an amendment to the Technical Specifications (TS) for Calvert Cliffs Nuclear Power Plant.

The proposed amendment would revise the TS 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 TS 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 Technical Specification Task Force Improved Standard Technical Specification 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.

The evaluation of the proposed changes and the significant hazards discussion are provided in Attachment (1). Attachment (2) provides marked up pages of the existing Technical Specification to demonstrate the proposed changes. Attachment (3) provides the marked up pages of the existing Technical Specification Bases to demonstrate the proposed changes.

Calvert Cliffs requests approval of the proposed license amendment by February 1, 2012, with the amendment being implemented within 90 days.

A001
NRR

Should you have questions regarding this matter, please contact Mr. Douglas E. Lauver at (410) 495-5219.

Very truly yours,

George Gellrich

STATE OF MARYLAND :
: **TO WIT:**
COUNTY OF CALVERT :

I, George H. Gellrich, being duly sworn, state that I am Vice President - Calvert Cliffs Nuclear Power Plant, LLC (CCNPP), and that I am duly authorized to execute and file this License Amendment Request on behalf of CCNPP. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other CCNPP employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Subscribed and sworn before me, a Notary Public in and for the State of Maryland and County of St. Mary's, this 22nd day of March, 2011.

WITNESS my Hand and Notarial Seal:

Janet L. Tully
Notary Public

My Commission Expires:

March 14 2015
Date

GHG/KLG/bjd

Attachments: (1) Evaluation of Proposed Changes
(2) Marked Up Technical Specification Pages
(3) Marked Up Technical Specification Bases Pages

cc: D. V. Pickett, NRC
W. M. Dean, NRC
Resident Inspector, NRC
S. Gray, DNR

ATTACHMENT (1)

EVALUATION OF PROPOSED CHANGES

TABLE OF CONTENTS

ATTACHMENT (1)

EVALUATION OF PROPOSED CHANGES

1.0 DESCRIPTION

The proposed amendment would revise the Technical Specifications (TS) 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 Nuclear Regulatory Commission (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).

2.0 PROPOSED CHANGES

The proposed changes revise and add a new Condition C to TS 3.4.14, "RCS Leakage Detection Instrumentation," and revise the associated TS 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, which summarize the reasons for the specifications, 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 3.4.14.

The proposed changes also correct inappropriate references to "required" equipment in TS 3.4.14. In one location the specification incorrectly refers to a "required" containment sump level alarm. The term "required" is reserved for situations in which there are multiple ways to meet the LCO, such as the requirement for either a gaseous or particulate radiation monitor. The incorrect use of the term "required" is removed from TS 3.4.14 Condition A.

Calvert Cliffs Nuclear Power Plant, LLC (Calvert Cliffs) is proposing a minor variation from the TS changes described in TSTF-513, Revision 3, or the NRC staff's model SE published in the Federal Register on January 3, 2011 (76 FR 189) as part of the CLIIP Notice of Availability.

The plant specific variation is to add the Note "Not required until 12 hours after establishment of steady state operation" to Required Actions A.1 and B.1.2. The Calvert Cliffs TSs currently do not contain this Note because Calvert Cliffs TSs adopted the Improved Standard Technical Specifications (NUREG-1432) prior to this Note being added. Later revisions of NUREG-1432 added this Note. Adding this Note now in both places, aligns Calvert Cliffs TS with the Improved Standard Technical Specifications and maintains the intent of TSTF-513. This plant specific deviation does not affect the NRC staff model Safety Evaluation (SE) approving TSTF-513.

3.0 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 TS list of required monitors. However, industry experience has shown that the primary containment atmosphere gaseous radiation 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 radiation monitor in the LCO list of required equipment, revise the specified safety function of the gaseous radiation 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 radiation monitor is the only operable monitor.

4.0 TECHNICAL ANALYSIS

Calvert Cliffs 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. Calvert Cliffs has concluded that the technical bases presented in TSTF Traveler-513, Revision 3, and the model SE prepared by the NRC staff are applicable to Calvert Cliffs, Unit Nos. 1 and 2.

The proposed amendment revises the language in the TS Bases that describes when the gaseous and particulate containment atmosphere radioactivity monitor is operable. The proposed amendment requires additional batch or manual RCS leakage monitoring to be performed when the primary containment atmosphere gaseous radiation 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 radiation 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 degradation.

The Calvert Cliffs RCS leakage detection instrumentation is not specifically designed to meet 10 CFR Part 50, Appendix A, General Design Criterion 30, "Quality of Reactor Coolant Pressure Boundary." Since Calvert Cliffs Units 1 and 2 construction permits preceded the development of the General Design Criteria (GDC), the Units were instead designed and constructed to meet the Atomic Energy Commission's proposed General Design Criteria. Calvert Cliffs RCS leakage detection instrumentation were therefore designed to meet proposed General Design Criterion 16 "Monitoring Reactor Coolant Pressure Boundary." Section 5.2 below discusses Calvert Cliffs regulatory requirements in more detail.

5.0 REGULATORY SAFETY ANALYSIS

5.1 NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Calvert Cliffs has evaluated the proposed changes to the Technical Specification (TS) 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 3.4.14, "Reactor Coolant System (RCS) Leakage Detection Instrumentation" Conditions and Required Actions and the licensing basis for the gaseous radiation monitor, as well as make associated TS Bases changes for TS 3.4.14.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the Calvert Cliffs 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 clarifies the operability requirements for the RCS leakage detection instrumentation and reduces the time allowed for the plant to operate when the only TS required operable RCS leakage detection instrumentation monitor is the containment atmosphere gaseous radiation monitor. The monitoring of RCS leakage is not a precursor to any accident previously evaluated. The monitoring of RCS leakage is not used to mitigate the consequences of any accident previously evaluated. The plant specific variation to this license amendment request, to insert the Note "Not required until 12 hours after establishment of steady state operation" into applicable portions of the Technical Specification is administrative in nature. As a result, its inclusion does not impact any plant equipment's ability to perform its required functions. Therefore, it is concluded that the proposed changes do 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 clarifies the operability requirements for the RCS leakage detection instrumentation and reduces the time allowed for the plant to operate when the only TS required operable RCS leakage detection instrumentation monitor is the containment atmosphere gaseous radiation 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. The plant specific variation to this license amendment request, to insert the Note "Not required until 12 hours after establishment of steady state operation" into applicable portions of the Technical Specification also does not involve a physical alteration of the plant or change in how plant equipment is operated. Therefore, it is concluded that the proposed changes do 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 clarifies the operability requirements for the RCS leakage detection instrumentation and reduces the time allowed for the plant to operate when the only TS required operable RCS leakage detection instrumentation monitor is the containment atmosphere gaseous radiation monitor. Reducing the amount of time the plant is allowed to operate with only the containment atmosphere gaseous radiation 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. The plant specific variation to this license amendment request, to insert the Note "Not required until 12 hours after establishment of steady state operation" into applicable portions of the Technical Specification provides clarification as it reflects the time necessary for plant conditions to stabilize in order to ensure an accurate water inventory can be obtained.

Therefore, it is concluded that the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the above analysis, Calvert Cliffs concludes that the requested changes do 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). Calvert Cliffs 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 Calvert Cliffs, Unit Nos, 1 and 2. The following regulatory requirements apply to Calvert Cliffs, Units 1 and 2.

Calvert Cliffs Units 1 and 2 were designed and constructed to meet the intent of the Atomic Energy's Commission's proposed General Design Criteria (GDC) published in July 1967. As such Calvert Cliffs RCS leakage detection instrumentation meets proposed General Design Criterion 16, "Monitoring Reactor Coolant Pressure Boundary," requirement that "means shall be provided for monitoring the reactor coolant pressure boundary to detect leakage."

Title 10 CFR Part 50, Appendix A, GDC 30, "Quality of reactor coolant pressure boundary" requires "Means shall be provided for detecting and, to the extent practical, identifying the location of the source of reactor coolant leakage." Although not specifically designed to meet GDC 30, Calvert Cliffs through its meeting the requirement of Atomic Energy's Commission's proposed GDC 16 and through methods in place to identify RCS leakage sources, meets the intent of GDC 30.

Regulatory Guide 1.45, Revision 0, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973, describes acceptable methods of implementing the GDC 30 requirements with regard to the selection of leakage detection systems for the reactor coolant pressure boundary. As part of Calvert Cliffs submittal to be allowed to use leak-before-break methodology, Calvert Cliffs RCS leakage detection instrumentation system was evaluated against each of the regulatory positions contained in Regulatory Guide 1.45. In the subsequent NRC Safety Evaluation it was determined Calvert Cliffs RCS leakage detection system satisfied Regulatory Guide 1.45.

Calvert Cliffs Updated Final Safety Analysis Report, Section 4.3, "Leak Detection System" further highlights the design requirements for Calvert Cliffs RCS leakage detection instrumentation.

6.0 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.

7.0 REFERENCES

None

ATTACHMENT (2)

MARKED UP TECHNICAL SPECIFICATION PAGES

Calvert Cliffs Nuclear Power Plant, LLC
March 22, 2011

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Leakage Detection Instrumentation

LCO 3.4.14 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment sump level alarm; and

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ~~Required~~ containment sump level alarm inoperable.	INSERT 1 A.1	Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	A.2	Restore containment sump level alarm to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the containment atmosphere. OR INSERT 1 B.1.2 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
D C. Required Action and associated Completion Time not met.	D C.1 Be in MODE 3. AND D C.2 Be in MODE 5.	6 hours 36 hours
E D. All required alarms and monitors inoperable.	E D.1 Enter LCO 3.0.3.	Immediately

INSERT 2

INSERT 1:

----------NOTE----------
Not required until 12 hours after
establishment of steady state operation

INSERT 2:

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Only applicable when the containment atmosphere gaseous radiation monitor is the only OPERABLE monitor. --- C. Containment sump level alarm inoperable	C.1 Analyze grab samples of the containment atmosphere. AND C.2 Restore containment sump level alarm to OPERABLE status.	Once per 12 hours 7 days

ATTACHMENT (3)

MARKED UP TECHNICAL SPECIFICATION BASES PAGES

Calvert Cliffs Nuclear Power Plant, LLC
January 00, 2011

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.14 RCS Leakage Detection Instrumentation

BASES

BACKGROUND

Reference 1, Appendix 1C, Criterion 16 requires means for detecting RCS LEAKAGE. Reference 2 describes acceptable methods for selecting leakage detection systems.

Leakage detection systems must have the capability to detect significant RCPB degradation, as soon after the 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. INSERT 1

~~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~~. The containment sump used to collect unidentified LEAKAGE is instrumented to alarm when level increases above the alarm trip setpoint. The sump is then drained and time logged. If the alarm sounds again, the time is logged and a leakage rate is calculated. This is acceptable for detecting increases in unidentified LEAKAGE.

The reactor coolant contains radioactivity, that, when released to the Containment Structure, ~~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. Instrument sensitivities of 5E-12 µCi/cc DOSE EQUIVALENT I-131 for particulate monitoring and of 3E-6 µCi/cc Xe-133 for gaseous monitoring are practical for these leakage detection systems~~. Radioactivity detection systems are included for monitoring both particulate and gaseous activities, because of their sensitivities and responses to RCS LEAKAGE. These radioactivity monitors have a range of 10^1-10^6 counts per minute.

Insert → An increase in humidity of the containment atmosphere would indicate release of water vapor to the Containment

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

BASES

Structure, which would be an indicator of potential RCS LEAKAGE. Since the humidity level is influenced by several factors, a quantitative evaluation of an indicated leakage rate by this means may be questionable and should be compared to observed increases in liquid flow into or from the containment sump. Humidity level monitoring is considered most useful as an indication to alert the operator to a potential problem. Humidity monitors are not required by this LCO.

Air temperature and pressure monitoring methods may also be used to infer unidentified LEAKAGE to the Containment Structure. Containment temperature and pressure fluctuate slightly during plant operation, but a rise above the normally indicated range of values may indicate RCS LEAKAGE into the Containment Structure. The relevance of temperature and pressure measurements ~~are~~ is affected by containment free volume and, for temperature, detector location. Alarm signals from these instruments can be valuable in recognizing rapid and sizable leakage to the Containment Structure. Temperature and pressure monitors are not required by this LCO. INSERT 2

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 RCS leakage detection instrumentation is described in Reference 1, Section 4.3. ~~Multiple instrument locations are utilized, if needed, to help identify the location of the LEAKAGE and its source.~~

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

Reactor Coolant System leakage detection instrumentation satisfies 10 CFR 50.36(c)(2)(ii), Criterion 1.

BASES

LCO

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

Small amounts of Unidentified LEAKAGE

INSERT 3

The LCO is satisfied when monitors of diverse measurement means are available. Thus, the containment sump monitor, in combination with a particulate or gaseous radioactivity monitor, 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 MODEs 5 or 6, the temperature is ≤ 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

A.1 and A.2

If the containment sump level alarm is inoperable, no other form of sampling can provide the equivalent information.

However, the containment atmosphere radioactivity monitor will provide indications of changes in leakage. Together with the atmosphere monitor, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage.

Containment

radioactivity

INSERT 4

Restoration of the sump level alarm 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.

BASES

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

With both gaseous and particulate containment atmosphere radioactivity monitoring instrumentation channels 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 an inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of at least one of the radioactivity monitors.

INSERT 4

The 24 hour interval provides periodic information that is adequate to detect leakage. The 30 day Completion Time recognizes at least one other form of leakage detection is available.

INSERT 5

D.1 and D.2

If any required Action of Conditions A, B or C cannot be met within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

E.1

If all required alarms and monitors are inoperable, no automatic means of monitoring leakage are available, an immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

SR 3.4.14.1

Surveillance Requirement 3.4.14.1 requires the performance of a CHANNEL CHECK of the required containment atmosphere radioactivity monitors. The check gives reasonable confidence the channel is operating properly. The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.

BASES

SR 3.4.14.2

Surveillance Requirement 3.4.14.2 requires the performance of a CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitors. 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. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specification tests at least once per refueling interval with applicable extensions. The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.

SR 3.4.14.3 and SR 3.4.14.4

These SRs require the performance of a CHANNEL CALIBRATION for each of the RCS leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside Containment Structure. The Frequency of 24 months is a typical refueling cycle and considers channel reliability. Operating experience has shown this Frequency is acceptable.

REFERENCES

1. UFSAR Revision 0,
2. Regulatory Guide 1.45, Reactor Coolant Pressure Boundary Leakage Detection Systems, May 1973

Insert 1:
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 2:
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.

Insert 3
The LCO requires two instruments to be OPERABLE.

The containment sump is used to collect unidentified LEAKAGE. The monitor on the containment sump detects level. 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 level alarm 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 1gpm increase in unidentified LEAKAGE within 1 hour given an RCS activity equivalent to that assumed in the design calculations for the monitors (Reference 3).

Insert 4
A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable 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.

Insert 5:
C.1 and C.2

With the containment sump level alarm inoperable, the only means of detecting LEAKAGE is the required containment atmosphere radiation monitor. A Note clarifies that this Condition is applicable when the only OPERABLE monitor is the containment atmosphere gaseous radiation monitor. The containment atmosphere gaseous radioactivity monitor typically cannot detect a 1gpm 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 every 12 hours to provide alternate periodic information. The 12 hour interval is sufficient to detect increasing RCS leakage. The Required Action provides 7 days to restore the containment sump level alarm to OPERABLE status to regain the intended leakage detection diversity. The 7 day Completion Time ensures that the plant will not be operated in a degraded configuration for a lengthy time period.