

Industry/TSTF Standard Technical Specification Change Traveler

RCS Inventory Balance SR: Steady State Clarification

Priority/Classification 1) Correct Specifications

NUREGs Affected: 1430 1431 1432 1433 1434

Description:

Combine the SR 3.4.13.1 Frequency Note and Surveillance Note into the Surveillance Note:

1. Eliminate the Frequency Note
2. Eliminate the Surveillance Note reference to "in MODE 3 or 4"
3. Add the phrase "after establishment" to the SR Note.

Also add a similar Note (as modified) to the Required Actions A.1 and B.1.2 of LCO 3.4.15.

In addition, an editorial oversight is corrected in the WOG and CEOG Bases for Action 3.4.15.B in which one of the Actions was not reflected in the Bases.

Justification:

SR 3.4.13.1 contains two separate allowances; both intended to address the same concern: the RCS water inventory balance cannot be meaningfully performed unless the unit is operating at near full pressure steady state conditions. The Note to the Surveillance provides an exception for operation at less than rated conditions (i.e., in MODES 3 and 4), while the Note to the Frequency provides a similar allowance for all other operating conditions. The Frequency Note is non-specific as to the time allowed after reaching steady state conditions to complete performance of the inventory balance. One possible interpretation would to allow a full 72 hours after any non-steady state operation. This change combines these exceptions into a single Surveillance Note, which simplifies and increases clarity. The RCS inventory balance will only be allowed to be deferred for 12 hours after re-establishing steady state conditions. Similarly, the RCS water inventory balance is required by the Actions of LCO 3.4.15, and the same exception is applied.

Revision History

OG Revision 0

Revision Status: Closed

Revision Proposed by: Callaway

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 12-Mar-96

Owners Group Comments

Originally approved on 3/2/96. Withdrawn for further consideration. Approved with changes on 4/25/96

Owners Group Resolution: Approved Date: 25-Apr-96

TSTF Review Information

TSTF Received Date: 31-May-96

Date Distributed for Review 31-May-96

OG Review Completed: BWO WOG CEOG BWROG

TSTF Comments:

Applicable to CEOG and CEOG accepts

Applies to BWO. BWO was concerned that an inventory balance would never be required if the unit is not stable. However, BWO accepts.

TSTF Resolution: Approved Date: 06-Aug-96

2/17/98

NRC Review Information

NRC Received Date: 30-Sep-96 NRC Reviewer: Weston, M.

NRC Comments:

3/18/97 - NRC approved. TSTF informed NRC of need for further changes to the Traveler. TSTF-116, Rev. 1 forthcoming.

3/28/97 - Revision 1 forwarded to the NRC.

Final Resolution: Superseded by Revision

Final Resolution Date: 07-Apr-97

TSTF Revision 1**Revision Status: Closed**

Revision Proposed by: WOG

Revision Description:

Revise the Bases insert to eliminate the phrase "near operating pressure." This is inconsistent with the existing Bases which address steady state operation and stable operating pressure.

TSTF Review Information

TSTF Received Date: 19-Nov-96

Date Distributed for Review 03-Feb-97

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved Date: 23-Mar-97

NRC Review Information

NRC Received Date: 07-Apr-97

NRC Reviewer: Weston, M.

NRC Comments:

10/2/97 - Reviewer forwarded to SRXB for review.

12/2/97 - NRC requests that the Bases SR addition be modified to include the parenthetical description of steady state conditions included in the Actions Bases inserts.

Final Resolution: Superseded by Revision

Final Resolution Date: 02-Dec-97

TSTF Revision 2**Revision Status: Active****Next Action: NRC**

Revision Proposed by: TSTF

Revision Description:

Revised Surveillance Bases to include the parenthetical description of steady state conditions included in the proposed Actions Bases.

TSTF Review Information

TSTF Received Date: 14-Jan-98

Date Distributed for Review 15-Jan-98

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved Date: 05-Feb-98

2/17/98

Incorporation Into the NUREGs

File to BBS/LAN Date:

TSTF Informed Date:

TSTF Approved Date:

NUREG Rev Incorporated:

Affected Technical Specifications

SR 3.4.13.1	RCS Operational Leakage	
SR 3.4.13.1 Bases	RCS Operational Leakage	
Action 3.4.15.A	RCS Leakage Detection Instrumentation	
Action 3.4.15.A Bases	RCS Leakage Detection Instrumentation	
Action 3.4.15.B	RCS Leakage Detection Instrumentation	
Action 3.4.15.B Bases	RCS Leakage Detection Instrumentation	
Action 3.4.15.C	RCS Leakage Detection Instrumentation	NUREG(s)- 1431 1432 Only
Action 3.4.15.C Bases	RCS Leakage Detection Instrumentation	NUREG(s)- 1431 1432 Only

2/17/98

INSERT 1

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 2

(stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, [and RCP seal injection and return flows])

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.1</p> <p>-----NOTE----- Not required to be performed in MODE 3 or 4 until 12 hours of steady state operation.</p> <p style="text-align: center;"><i>↑</i> <i>after establishment</i></p> <p>Perform RCS water inventory balance.</p>	<p>NOTE Only required to be performed during steady state operation</p> <p>72 hours</p>
<p>SR 3.4.13.2</p> <p>Verify steam generator tube integrity is in accordance with the Steam Generator Tube Surveillance Program.</p>	<p>In accordance with the Steam Generator Tube Surveillance Program</p>

TSTE-116,
Rev. 2

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 sump monitor; 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 monitor inoperable.	-----NOTE----- LCO 3.0.4 is not applicable.	
	A.1 → Perform SR 3.4.13.1. <u>AND</u> A.2 Restore required containment sump monitor to OPERABLE status.	Once per 24 hours 30 days
B. Required containment atmosphere radioactivity monitor inoperable.	-----NOTE----- LCO 3.0.4 is not applicable.	
	B.1.1 Analyze grab samples of the containment atmosphere. <u>OR</u>	Once per 24 hours (continued)

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.1.2 → Perform SR 3.4.13.1. <u>AND</u> B.2 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	Once per 24 hours 30 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours
D. Both required monitors inoperable.	D.1 Enter LCO 3.0.3.	Immediately

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.15.1 Perform CHANNEL CHECK of required containment atmosphere radioactivity monitor.	12 hours
SR 3.4.15.2 Perform CHANNEL FUNCTIONAL TEST of required containment atmosphere radioactivity monitor.	92 days

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.4.13.1

Verifying RCS LEAKAGE within the LCO limits ensures that the integrity of the RCPB is maintained. Pressure boundary LEAKAGE would at first appear as unidentified LEAKAGE and can only be positively identified by inspection. Unidentified LEAKAGE and identified LEAKAGE are determined by performance of an RCS water inventory balance. Primary to secondary LEAKAGE is also measured by performance of an RCS water inventory balance in conjunction with effluent monitoring within the secondary steam and feedwater systems.

a Note is added allowing that

The RCS water inventory balance must be performed with the reactor at steady state operating conditions ^{Insert 2} and near operating pressure. Therefore, this SR is not required to be performed in MODES 3 and 4 until 12 hours of steady state operation ^{after establishing} near operating pressures have been established.

The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

^{Since} Steady state operation is required to perform a proper water inventory balance, calculations during maneuvering are not useful and a Note requires the surveillance to be met when steady state is established. For RCS operational LEAKAGE determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP pump seal injection and return flows.

An early warning of pressure boundary LEAKAGE or unidentified LEAKAGE is provided by the automatic systems that monitor the containment atmosphere radioactivity and the containment sump level. These leakage detection systems are specified in LCO 3.4.15, "RCS Leakage Detection Instrumentation."

The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents. The Note states that the SR is required to be performed in steady state operation.

SR 3.4.13.2

This SR provides the means necessary to determine SG OPERABILITY in an operational MODE. The requirement to demonstrate SG tube integrity in accordance with the Steam

(continued)

BASES (continued)

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.

The LCO requirements are 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 MODE 5 or 6, the temperature is $\leq 200^{\circ}\text{F}$ 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

With the required containment sump monitor 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.

Insert 1

Restoration of the required sump monitor to OPERABLE status is required to regain the function in a Completion Time of 30 days after the monitor's failure. This time is

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

acceptable considering the frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

Required Action A.1 and Required Action A.2 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 sump monitor is inoperable. This allowance is provided because other instrumentation is available to monitor RCS LEAKAGE.

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

With required gaseous or 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 a water 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.

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 leak detection is available.

Insert 1

Required Actions B.1.1, B.1.2, and B.2 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 containment atmosphere radioactivity monitor is inoperable. This allowance is provided because other instrumentation is available to monitor RCS LEAKAGE.

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 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.1</p> <p>-----NOTE----- Not required to be performed in MODE 3 or 4 until 12 hours of steady state operation.</p> <p style="text-align: center;"><i>after establishment</i></p> <p>Perform RCS water inventory balance.</p>	<p>-----NOTE----- Only required to be performed during steady state operation</p> <p>72 hours</p>
<p>SR 3.4.13.2</p> <p>Verify steam generator tube integrity is in accordance with the Steam Generator Tube Surveillance Program.</p>	<p>In accordance with the Steam Generator Tube Surveillance Program</p>

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 sump (level or discharge flow) monitor;
- b. One containment atmosphere radioactivity monitor (gaseous or particulate); [and
- c. One containment air cooler condensate flow rate monitor].

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Required containment sump monitor inoperable.</p>	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>A.1 Perform SR 3.4.13.1. AND A.2 Restore required containment sump monitor to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>30 days</p>

(continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required containment atmosphere radioactivity monitor inoperable.</p>	<div style="border: 1px dashed black; padding: 5px; margin-bottom: 10px;"> <p>-----NOTE----- LCO 3.0.4 is not applicable.</p> </div> <p>B.1.1 Analyze grab samples of the containment atmosphere.</p> <p style="text-align: center;"><u>OR</u></p> <p>B.1.2 → Perform SR 3.4.13.1.</p> <p style="text-align: center;"><u>AND</u></p> <p>B.2.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.</p> <p style="text-align: center;"><u>OR</u></p> <p>B.2.2 Verify containment air cooler condensate flow rate monitor is OPERABLE.</p>	<p>Once per 24 hours</p> <p>Once per 24 hours</p> <p>30 days</p> <p>30 days</p>
<p>C. Required containment air cooler condensate flow rate monitor inoperable.</p>	<p>C.1 Perform SR 3.4.15.1.</p> <p style="text-align: center;"><u>OR</u></p> <p>C.2 → Perform SR 3.4.13.1.</p>	<p>Once per 8 hours</p> <p>Once per 24 hours</p>

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

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

acting on the RCPB are much lower, and further deterioration is much less likely.

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1

Verifying RCS LEAKAGE to be within the LCO limits ensures the integrity of the RCPB is maintained. Pressure boundary LEAKAGE would at first appear as unidentified LEAKAGE and can only be positively identified by inspection. It should be noted that LEAKAGE past seals and gaskets is not pressure boundary LEAKAGE. Unidentified LEAKAGE and identified LEAKAGE are determined by performance of an RCS water inventory balance. Primary to secondary LEAKAGE is also measured by performance of an RCS water inventory balance in conjunction with effluent monitoring within the secondary steam and feedwater systems.

a Note is added allowing that

The RCS water inventory balance must be met with the reactor at steady state operating conditions ~~and near operating pressure~~. Therefore, this SR is not required to be performed ~~in MODES 3 and 4 until 12 hours of steady state operation near operating pressure have been established.~~

Insert 2

after establishing

The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

~~Steady state operation~~ ^{since} is required to perform a proper inventory balance ~~calculations during maneuvering are not useful and a Note requires the surveillance to be met when steady state is established.~~ For RCS operational LEAKAGE determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

An early warning of pressure boundary LEAKAGE or unidentified LEAKAGE is provided by the automatic systems that monitor the containment atmosphere radioactivity and the containment sump level. It should be noted that LEAKAGE past seals and gaskets is not pressure boundary LEAKAGE. These leakage detection systems are specified in LCO 3.4.15, "RCS Leakage Detection Instrumentation."

The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.13.1 (continued)

~~detection in the prevention of accidents. A Note under the
Frequency column states that this SR is required to be
performed during steady state operation.~~

SR 3.4.13.2

This SR provides the means necessary to determine SG OPERABILITY in an operational MODE. The requirement to demonstrate SG tube integrity in accordance with the Steam Generator Tube Surveillance Program emphasizes the importance of SG tube integrity, even though this Surveillance cannot be performed at normal operating conditions.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
 2. Regulatory Guide 1.45, May 1973.
 3. FSAR, Section [15].
-
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BASES

ACTIONS

A.1 and A.2 (continued)

Insert 1

must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage ↗

Restoration of the required sump monitor to OPERABLE status within a Completion Time of 30 days is required to regain the function 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.

Required Action A.1 is modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the containment sump monitor is inoperable. This allowance is provided because other instrumentation is available to monitor RCS leakage.

B.1.1, B.1.2, B.2.1, and B.2.2

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.

or water inventory balance performed

With a sample obtained and analyzed or water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of the required containment atmosphere radioactivity monitors. Alternatively, continued operation is allowed if the air cooler condensate flow rate monitoring system is OPERABLE, provided grab samples ↗ are taken every 24 hours.

editorial oversight

Insert 1

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.

Required Action B.1 and Required Action B.2 are modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the gaseous and particulate containment atmosphere radioactivity monitor channel is inoperable. This allowance

(continued)

BASES

ACTIONS

B.1.1, B.1.2, B.2.1, and B.2.2 (continued)

is provided because other instrumentation is available to monitor for RCS LEAKAGE.

C.1 and C.2

With the required containment air cooler condensate flow rate monitor inoperable, alternative action is again required. Either SR 3.4.15.1 must be performed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. Provided a CHANNEL CHECK is performed every 8 hours or a water inventory balance is performed every 24 hours, reactor operation may continue while awaiting restoration of the containment air cooler condensate flow rate monitor to OPERABLE status.

The 24 hour interval provides periodic information that is adequate to detect RCS LEAKAGE. ←

Insert 1

D.1 and D.2

With the required containment atmosphere radioactivity monitor and the required containment air cooler condensate flow rate monitor inoperable, the only means of detecting leakage is the containment sump monitor. This Condition does not provide the required diverse means of leakage detection. The Required Action is to restore either of the inoperable required monitors to OPERABLE status within 30 days to regain the intended leakage detection diversity. The 30 day Completion Time ensures that the plant will not be operated in a reduced configuration for a lengthy time period.

E.1 and E.2

If a Required Action of Condition A, B, [C], or [D] cannot be met, the plant must be brought to a MODE in which the requirement 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

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.1</p> <p>-----NOTE----- Not required to be performed in MODE 3 or 4 until 12 hours of steady state operation. ----- <i>after establishment</i></p> <p>Perform RCS water inventory balance.</p>	<p>NOTE Only required to be performed during steady state operation</p> <p>72 hours</p>
<p>SR 3.4.13.2</p> <p>Verify SG tube integrity is in accordance with the Steam Generator Tube Surveillance Program.</p>	<p>In accordance with the Steam Generator Tube Surveillance Program</p>

TSTF-116, Rev. 2

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 [Two of] the following RCS leakage detection instrumentation shall be OPERABLE:

- a. One containment sump monitor; [and]
- b. One containment atmosphere radioactivity monitor (gaseous or particulate); [and]
- c. One containment air cooler condensate flow rate monitor.]

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump monitor inoperable.	-----NOTE----- LCO 3.0.4 is not applicable.	
[OR Required containment air cooler flow rate monitor inoperable.]	A.1 Perform SR 3.4.13.1. AND A.2 Restore containment sump monitor to OPERABLE status.	Once per 24 hours 30 days

(continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required containment atmosphere radioactivity monitor inoperable.</p>	<p style="text-align: center;">[-----NOTE-----] LCO 3.0.4 is not applicable. -----</p> <p>B.1.1 Analyze grab samples of the containment atmosphere.</p> <p style="text-align: center;"><u>OR</u></p> <p>B.1.2 → Perform SR 3.4.13.1.</p> <p style="text-align: center;"><u>AND</u></p> <p>B.2.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.</p> <p style="text-align: center;"><u>OR</u></p> <p>B.2.2 Verify containment air cooler condensate flow rate monitor is OPERABLE.</p>	<p>Once per 24 hours</p> <p>Once per 24 hours</p> <p>30 days</p> <p>30 days</p>
<p>C. Required containment air cooler condensate flow rate monitor inoperable.</p>	<p>C.1 → Perform SR 3.4.15.1.</p> <p style="text-align: center;"><u>OR</u></p> <p>C.2 Perform SR 3.4.13.1.</p>	<p>Once per 8 hours</p> <p>Once per 24 hours</p>

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

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

acting on the RCPB are much lower, and further deterioration is much less likely.

SURVEILLANCE
REQUIREMENTS

SR 3.4.13.1

Verifying RCS LEAKAGE to be within the LCO limits ensures the integrity of the RCPB is maintained. Pressure boundary LEAKAGE would at first appear as unidentified LEAKAGE and can only be positively identified by inspection. Unidentified LEAKAGE and identified LEAKAGE are determined by performance of an RCS water inventory balance. Primary to secondary LEAKAGE is also measured by performance of an RCS water inventory balance in conjunction with effluent monitoring within the secondary steam and feedwater systems.

a note is added allowing that

The RCS water inventory balance must be performed with the reactor at steady state operating conditions ^{Insert 2} and bear ~~operating pressure~~. Therefore, this SR is not required to be performed ~~in MODES 3 and 4,~~ until 12 hours ^{after establishing} of steady state operation ~~near operating pressure have elapsed.~~

The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

^{Since} Steady state operation is required to perform a proper water inventory balance ~~calculations during maneuvering are not useful and a Note requires the surveillance to be met when steady state is established.~~ For RCS operational LEAKAGE determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

An early warning of pressure boundary LEAKAGE or unidentified LEAKAGE is provided by the automatic systems that monitor the containment atmosphere radioactivity and the containment sump level. These leakage detection systems are specified in LCO 3.4.15, "RCS Leakage Detection Instrumentation."

The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents. ~~A Note under the Frequency column states that this SR is required to be performed during steady state operation.~~

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

at an increased frequency of 24 hours to provide information that is adequate to detect leakage.

Insert 1

Restoration of the sump monitor 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.

Required Action A.1 and Required Action A.2 are modified by a Note that indicates the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the containment sump monitor channel is inoperable. This allowance is provided because other instrumentation is available to monitor for RCS LEAKAGE.

B.1.1, B.1.2, B.2.1, and B.2.2

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.

Alternatively, continued operation is allowed if the air cooler condensate flow rate monitoring system is OPERABLE, provided grab samples are taken every 24 hours.

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.

Required Actions B.1.1, B.1.2, B.2.1, and B.2.2 are modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the gaseous and particulate containment atmosphere radioactivity monitor channel is inoperable. This allowance

(continued)

BASES

ACTIONS

B.1.1, B.1.2, B.2.1, and B.2.2 (continued)

is provided because other instrumentation is available to monitor for RCS LEAKAGE.

C.1 and C.2

If the required containment air cooler condensate flow rate monitor is inoperable, alternative action is again required. Either SR 3.4.15.1 must be performed, or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. Provided a CHANNEL CHECK is performed every 8 hours or an inventory balance is performed every 24 hours, reactor operation may continue while awaiting restoration of the containment air cooler condensate flow rate monitor to OPERABLE status.

The 24 hour interval provides periodic information that is adequate to detect RCS LEAKAGE.↑

Insert 1

D.1 and D.2

If the required containment atmosphere radioactivity monitor and the containment air cooler condensate flow rate monitor are inoperable, the only means of detecting leakage is the containment sump monitor. This Condition does not provide the required diverse means of leakage detection. The Required Action is to restore either of the inoperable monitors to OPERABLE status within 30 days to regain the intended leakage detection diversity. The 30 day Completion Times ensure that the plant will not be operated in a reduced configuration for a lengthy time period.

E.1 and E.2

If any Required Action of Condition A, B, [C], or [D] 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

(continued)