

Attachment III
R.E. Ginna Nuclear Power Plant

Mark-up of Existing Ginna Station Technical Specifications

Included pages:

3.4-38
3.4-39
3.4-40
3.4-41
B 3.4-102 *
B 3.4-103 *
B 3.4-104 *
B 3.4-105 *
B 3.4-106 *
B 3.4-107 *

- * These bases pages are being provided for information only to show the changes that RG&E intends to make following approval of the LAR. The bases are under RG&E control for all changes in accordance with Specification 5.5.13.

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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 A monitor (level or pump actuation); and

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

c. Particulate containment atmosphere radioactivity 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. -----	
	A.1.1 Perform SR 3.4.13.1.	Once per 24 hours
	<u>OR</u>	
	A.1.2 Verify containment air cooler condensate collection system is OPERABLE.	24 hours
	<u>AND</u>	
	A.2 Restore required containment sump monitor to OPERABLE status.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>(C) (B) Required containment atmosphere radioactivity monitor inoperable.</p> <p>Particulate</p> <p>or</p> <p>Required Action and associated Completion Time of Condition B not met.</p> <p>M.2</p>	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>(B.1.1) (C) Analyze grab samples of the containment atmosphere.</p> <p>OR</p> <p>(B.1.2) (C) Perform SR 3.4.13.1.</p> <p>AND</p> <p>B.2 Restore required containment atmosphere radioactivity monitor to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>Once per 24 hours</p> <p>30 days</p> <p>Once within 12 hours and every 12 hours thereafter</p>

(continued)

B. Gaseous containment atmosphere radioactivity monitor inoperable.	<p>----- NOTE ----- LCO 3.0.4 is not applicable. -----</p> <p>B.1 Verify particulate containment atmosphere radioactivity monitor OPERABLE.</p>	1 hour
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>(D) (C) Required containment sump monitor inoperable.</p> <p>AND</p> <p>Particulate containment atmosphere radioactivity monitor inoperable.</p> <p>atmosphere radioactivity</p> <p>Gaseous</p> <p>M.2</p>	<p>-----NOTE----- LCO 3.0.4 is not applicable.</p> <p>C.1.1 Analyze grab samples of the containment atmosphere.</p> <p>OR</p> <p>C.1.2 Perform SR 3.4.13.1</p> <p>AND</p> <p>(C.2.1) Restore required containment sump monitor to OPERABLE status.</p> <p>(D)</p> <p>OR</p> <p>(C.2.2) Restore particulate containment atmosphere radioactivity monitor to OPERABLE status.</p> <p>(D)</p>	<p>Once per 24 hours</p> <p>Once per 24 hours</p> <p>30 days</p> <p>30 days</p>
<p>(E) (D) Required Action and associated Completion Time of Conditions A, (B) or (C) not met.</p> <p>(C) (D)</p>	<p>(E) (D.1) Be in MODE 3.</p> <p>AND</p> <p>(D.2) Be in MODE 5.</p> <p>(E)</p>	<p>6 hours</p> <p>36 hours</p>
<p>(F) (E) All required monitors inoperable.</p> <p>(F)</p>	<p>(E.1) Enter LCO 3.0.3.</p> <p>(F)</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.15.1 Perform CHANNEL CHECK of <u>the required</u> containment atmosphere radioactivity monitor. (S)	12 hours
SR 3.4.15.2 Perform COT of <u>the required</u> containment atmosphere radioactivity monitor. (S)	92 days
SR 3.4.15.3 Perform CHANNEL CALIBRATION of the required containment sump monitor.	24 months
SR 3.4.15.4 Perform CHANNEL CALIBRATION of <u>the required</u> containment atmosphere radioactivity monitor. (S)	24 months

M.3

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

The resolution of USI-2 for Westinghouse PWRs was use of fracture mechanics technology for RCS piping > 10 inches diameter (Ref. 5). This technology became known as leak-before-break (LBB). Included within the LBB methodology was the requirement to have leakage detection systems capable of detecting a 1.0 gpm leak within four hours. This leakage rate is designed to ensure that adequate margins exist to detect leaks in a timely manner during normal operating conditions. The use of LBB for Ginna Station is documented in Reference 6. ^{the} ^{RCS}

See Insert 1

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 is necessary. Quickly separating the identified LEAKAGE from the unidentified LEAKAGE is necessary to provide quantitative information to the operators, allowing them to take corrective action should a leak occur that is detrimental to the safety of the plant and the public. Required corrective actions are provided in LCO 3.4.13, RCS Operational LEAKAGE. The capability of the leakage detection systems was evaluated by the NRC in Reference 7. ^{and Reference 8}

RCS leakage detection instrumentation satisfies Criterion 1 of the NRC Policy Statement.

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.

(continued)

BASES

LCO
(continued)

The LCO is satisfied when monitors of diverse measurement means are available. Thus, the containment sump A monitor (level or pump actuation from either sump A pump), in combination with a gaseous (R-12) ~~or~~ particulate (R-11) radioactivity monitor provides an acceptable minimum. Alternatively, the plant vent gaseous (R-14) or particulate (R-13) monitors may be used in place of R-12 and R-11, respectively, provided that a flowpath through normally closed valve 1590 is available and R-14A is OPERABLE. and

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 are much smaller. Therefore, the requirements of this LCO are not applicable in MODES 5 and 6.

ACTIONS

A.1.1, A.1.2, and A.2

With the required containment sump A monitor inoperable, no other form of sampling can provide the equivalent information; however, the containment atmosphere radioactivity monitor will provide indications of changes in leakage. In addition to an OPERABLE gaseous ~~or~~ particulate atmosphere monitor, the containment air cooler condensate collection system must be verified to be OPERABLE within 24 hours, or 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. The use of the gaseous monitor (R-12) is acceptable due to the increased frequency of performing SR 3.4.13.1 or the use of the containment air cooler condensate collection system. and

(continued)

BASES

ACTIONS

A.1.1, A.1.2, and A.2 (continued)

The containment air cooler condensate collection system is OPERABLE if the flow paths from all four containment air coolers to their respective collection tanks are available and a CHANNEL CALIBRATION of the monitor has been performed within the last 24 months. The containment air cooler condensate collection system is provided as an option for detecting RCS leakage since SR 3.4.13.1 is not performed until after 12 hours of steady state operation. Therefore, this collection system can be used during MODE changes if the containment sump monitor is inoperable to meet the LCO.

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 Actions A.1.1, A.1.2, and A.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 containment sump monitor is inoperable. This allowance is provided because other instrumentation is available to monitor RCS leakage.

see Insert 2

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

C.1. and C.2.

or Required Action
B.1 not met

the

With both gaseous (R-12) and particulate (R-11) containment atmosphere radioactivity monitoring instrumentation channels inoperable (and their alternatives R-13 and R-14), 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.

its alternate

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

12

as the gaseous (R-12) containment atmosphere radioactivity monitor can only measure between a 2.0 and 10.0 gpm leak within 1 hour and the (continued)

containment sump monitor can only measure a 2.0 gpm leak within one hour

BASES

ACTIONS

B.1.1, B.1.2, and B.2.1 (continued) *C.1. and C.2.*

Required Actions B.1.1, B.1.2, and B.2.1 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 monitors are inoperable. This allowance is provided because other instrumentation is available to monitor for RCS LEAKAGE. *is*

C.1.1, C.1.2, C.2.1, and C.2.2 *D.1 and D.2*

With the required containment sump monitor and the particulate containment atmosphere radioactivity monitor (R-11) inoperable, the only installed means of detecting leakage is the gaseous containment atmosphere radioactivity monitor (R-12). This condition does not provide a diverse means of leakage detection. Also, the gaseous monitor can only measure between a 2.0 and 10.0 gpm leak within 1 hour.. which may not meet the 1.0 gpm in less than four hours detection rate required by Generic Letter 84-04 (Ref. 5). *gaseous (R-12)* *sump* *sump*

In addition to the Required Actions of Conditions B and C,

The Required Actions are to analyze grab samples of the containment atmosphere or perform RCS water inventory balance, SR 3.4.13.1, at a frequency of 24 hours. The combination of the gaseous monitor and either the periodic grab samples or RCS inventory balance provide information that is adequate to detect leakage. Restoration of either of the inoperable monitors to OPERABLE status within 30 days is required 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 period of time. *D.1 and D.2*

Required Actions C.1.1, C.1.2, C.2.1, and C.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 containment sump monitor and particulate containment atmosphere radioactivity monitor are inoperable. This allowance is provided because other instrumentation is available to monitor RCS leakage. *gaseous*

(continued)

BASES

ACTIONS
(continued)

(E) D.1 and D.2

If a Required Action of Condition A, B, or C 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 required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(F) E.1

With all required monitors 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

This SR requires the performance of a CHANNEL CHECK of the required containment atmosphere radioactivity monitor. The check gives reasonable confidence that the channel is OK operating properly. The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.

SR 3.4.15.2

This SR requires the performance of a CHANNEL OPERATIONAL TEST (COT) on 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. The Frequency of 92 days considers instrument reliability, and operating experience has shown that it is proper for detecting degradation.

(continued)

BASES

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 RCS leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. The Frequency of 24 months considers channel reliability and operating experience has proven that this Frequency is acceptable.

REFERENCES

1. Atomic Industry Forum (AIF) GDC 16 and 34, Issued for comment July 10, 1967.
 2. Regulatory Guide 1.45.
 3. IE Bulletin No. 80-24, "Prevention of Damage Due to Water Leakage Inside Containment."
 4. NUREG-0609, "Asymmetric Blowdown Loads on PWR Primary Systems," 1981.
 5. Generic Letter 84-04, "Safety Evaluation of Westinghouse Topical Reports Dealing With Elimination of Postulated Pipe Breaks in PWR Primary Main Loops."
 6. Letter from D. C. DiIanni, NRC, to R. W. Kober, RG&E, Subject: "Generic Letter 84-04," dated September 9, 1985.
 7. NUREG-0821, "Integrated Plant Safety Assessment, Systematic Evaluation Program, R. E. Nuclear Power Plant," December 1982.
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8. Letter from Guy S. Vissing (NRC) to Robert C. Mecredy (RG&E), "Staff Review of the Submittal by Rochester Gas and Electric Company to Apply Leak-Before-Break Status to Portions of the R.E. Ginna Nuclear Power Plant Residual Heat Removal System Piping", dated February 25, 1999.

Insert 1

The LBB methodology was further expanded to include the portions of the residual heat removal (RHR) system piping from its connection to the RCS hot and cold leg piping to the first motor operated isolation valve. The specific application of LBB to this piping was reviewed by the NRC and the staff concluded that, because the appropriate margins on leakage and crack size have been met given the Ginna leakage detection system capability of 0.25 gpm, it has been demonstrated that these sections of piping will exhibit LBB behavior.

Insert 2

B.1

With the gaseous (R-12) containment atmosphere radioactivity monitoring instrumentation channel inoperable (and its alternate R-14), a verification that the particulate (R-11) containment atmosphere radioactivity monitor is OPERABLE is required. The 1 hour Completion Time is based on the low probability of a RCS leak occurring during this time frame.

Required Action B.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 gaseous containment atmosphere radioactivity monitor is inoperable. This allowance is provided because other instrumentation is available to monitor for RCS LEAKAGE.

Attachment IV
R.E. Ginna Nuclear Power Plant

Proposed Ginna Station Technical Specifications

Included pages:

3.4-38
3.4-39
3.4-40
3.4-41

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 A monitor (level or pump actuation);
- b. Gaseous containment atmosphere radioactivity monitor; and
- c. Particulate containment atmosphere radioactivity 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. -----	
	A.1.1 Perform SR 3.4.13.1.	Once per 24 hours
	<u>OR</u>	
	A.1.2 Verify containment air cooler condensate collection system is OPERABLE.	24 hours
	<u>AND</u>	
	A.2 Restore required containment sump monitor to OPERABLE status.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Gaseous containment atmosphere radioactivity monitor inoperable.	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>B.1 Verify particulate containment atmosphere radioactivity monitor OPERABLE.</p>	1 hour
<p>C. Particulate containment atmosphere radioactivity monitor inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition B not met.</p>	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>C.1 Analyze grab samples of the containment atmosphere.</p> <p><u>OR</u></p> <p>C.2 Perform SR 3.4.13.1.</p>	<p>Once within 12 hours and every 12 hours thereafter</p> <p>Once within 12 hours and every 12 hours thereafter</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Gaseous containment atmosphere radioactivity monitor inoperable.</p> <p><u>AND</u></p> <p>Particulate containment atmosphere radioactivity monitor inoperable.</p>	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>D.1 Restore gaseous containment atmosphere radioactivity monitor to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore particulate containment atmosphere radioactivity monitor to OPERABLE status.</p>	<p>30 days</p> <p>30 days</p>
<p>E. Required Action and associated Completion Time of Conditions A, C, or D not met.</p>	<p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>F. All required monitors inoperable.</p>	<p>F.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of containment atmosphere radioactivity monitors.	12 hours
SR 3.4.15.2	Perform COT of containment atmosphere radioactivity monitors.	92 days
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump monitor.	24 months
SR 3.4.15.4	Perform CHANNEL CALIBRATION of containment atmosphere radioactivity monitors.	24 months

