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GNRO-2003/00025

May 8, 2003

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

SUBJECT: Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License Amendment Request
"Proposed Changes to Primary Containment and Drywell Isolation Instrumentation Requirements", LDC 2003-033

REFERENCE: Letter from U.S. NRC to Mr. Michael Balduzzi, "Vermont Yankee Nuclear Power Station – Issuance of Amendment RE: HPCI and RCIC Isolation (TAC NO. MB0407)," dated April 20, 2001.

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment for Grand Gulf Nuclear Station, Unit 1. The amendment request involves two changes to Technical Specification (TS) 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation." One change would incorporate generic change TSTF-306, Revision 2 which adds a note allowing intermittent opening of penetration flow paths, under administrative control, that are isolated to comply with TS ACTIONS. The second would change the operability requirement for the Reactor Core Isolation Cooling (RCIC) steam supply line low pressure isolation instrumentation to be consistent with the RCIC system operability requirements. The proposed change to the RCIC isolation instrumentation requirements will improve plant startups following refueling outages by removing an unnecessary startup delay and allowing the RCIC system to be restored to service sooner after restart. Associated changes to the TS Bases pages are attached for your information.

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

The proposed change includes new commitments as summarized in Attachment 4. The NRC has approved a similar Technical Specification change for RCIC isolation instrumentation for another plant which is referenced above. The TSTF-306 Revision 2 proposed changes have been approved by the NRC for adoption by licensees.

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Entergy requests approval of the proposed amendment by February 2, 2004. Approval by that date is necessary to prepare for startup following a refueling outage. Once approved, the amendment shall be implemented within 60 days. Although this request is neither exigent nor emergency, your prompt review is requested.

If you have any questions or require additional information, please contact Ron Byrd at (601)-368-5792.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 8, 2003.

Sincerely,

George A. Williams

GAW/RWB/amt

Attachments:
1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. Changes to TS Bases pages (for information only)
4. List of Regulatory Commitments

cc:

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Attachment 1

GNRO-2003/00025

Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License(s) NPF-29 for Grand Gulf Nuclear Station, Unit 1 .

Entergy requests changes to section 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation" of the Technical Specifications (TS), Appendix A of the Operating License. One change would incorporate TSTF-306, Revision 2, which adds a note allowing intermittent opening of penetration flow paths, under administrative control, that are isolated to comply with TS ACTIONS. The second would change the operability requirement for the Reactor Core Isolation Cooling (RCIC) steam supply line low pressure isolation instrumentation to coincide with RCIC system operability requirements.

TSTF-306 provides consistency between the TS requirements for isolation valves and TS requirements for the instrumentation that supports the isolation valve function. It also provides additional flexibility in the performance of maintenance activities. The proposed change to the RCIC isolation instrumentation will improve plant startups following refueling outages by removing an unnecessary startup delay and allowing the RCIC system to be restored to service sooner. Entergy requests approval of the proposed amendment by February 2, 2004 in order to prepare for startup following a refueling outage. .

2.0 PROPOSED CHANGE

The proposed changes affect primary containment and drywell isolation instrumentation requirements established by Technical Specification (TS) 3.3.6.1. The first proposed change is to add an ACTION Note to Limiting Condition for Operation (LCO) 3.3.6.1 allowing intermittent opening, under administrative control, of penetration flow paths that are isolated to comply with ACTIONS. The proposed changes are consistent with TSTF-306, Revision 2 as applicable to BWR6 plants.

The new Note states:

1. Penetration flow paths may be unisolated intermittently under administrative control.

Minor administrative changes are also proposed to reflect the existence of multiple ACTION Notes. The existing Note will be labeled as Note 2 and the "NOTE" heading will be changed to "NOTES". These changes are administrative only and do not change the intent of the current requirements or allowances.

Entergy is also proposing to change the applicability for function 3.c of TS Table 3.3.6.1-1, RCIC Steam Supply Line Pressure – Low. The isolation function is currently required to be operable in plant MODES 1 (Run), 2 (Startup), and 3 (Hot Shutdown). Entergy proposes to replace the applicable plant operating mode requirements with a new footnote to associate operability of function 3.c with RCIC system operability. RCIC is currently required by TS 3.5.3 to be operable during MODE 1 and in MODES 2 and 3 when reactor steam dome pressure is greater than 150 psig.

Thus, Table 3.3.6.1-1 will be revised to reference a new footnote (d) in the Applicable MODES column for item 3.c, RCIC Steam Supply Line Pressure – Low. The new footnote will read: "When the RCIC system is required to be Operable per LCO 3.5.3." as indicated below.

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS
3. Reactor Core Isolation Cooling (RCIC) System Isolation	
c. RCIC Steam Supply Line Pressure - Low	(d)

(d) When the RCIC system is required to be OPERABLE per LCO 3.5.3.

Additional administrative changes are proposed to revise the designation of existing footnotes (d), (e), and (f) to footnotes (e), (f), and (g) respectively to account for the new footnote added for function 3.c. These changes are administrative only and do not change the intent of the existing footnotes.

In summary, Entergy is proposing to adopt TSTF-306, Revision 2 and revise the operability requirements for the RCIC steam supply line low pressure isolation instrumentation to be consistent with the operability requirements for the RCIC system.

Changes to the TS Bases associated with the proposed TS changes are provided in Attachment 3 for your information. These changes will be implemented in accordance with TS 5.5.11, Technical Specification Bases Control Program.

3.0 BACKGROUND

3.1 TSTF-306 Adoption

The improved Standard Technical Specifications (STS) were implemented for Grand Gulf Nuclear Station (GGNS) by amendment 120 using NUREG 1434, "Standard Technical Specifications, General Electric Plants, BWR/6." The industry and the NRC staff have been working to improve the STS NUREGs, and as a result, generic changes have been developed.

As part of this improvement effort, TSTF-306 was created to add an ACTIONS Note to LCO 3.3.6.1 to allow opening of primary containment penetration flow paths that were isolated to comply with ACTIONs associated with inoperable instrument channels or functions. This allowance is already provided in LCO 3.6.1.3 for Primary Containment Isolation Valves (PCIVs) and in LCO 3.6.5.3 for Drywell Isolation Valves that have been isolated to comply with ACTIONs. Since the isolation instrumentation serves as a support system for the isolation valves, the ACTIONS for inoperable instrumentation need not be more restrictive than that for

the function that it supports. As such, the allowance for intermittent operation of the isolation valves may be similarly added to the LCO for the supporting instrumentation.

TSTF-306 also included some changes that were applicable to only the BWR4 plants. Since GGNS is a BWR6 plant, these changes are not included. Those changes applicable to BWR6s are adopted verbatim with one application distinction. GGNS TS 3.3.6.1 applies to both primary containment and drywell isolation instrumentation functions whereas the improved STS NUREG 1434 does not specifically address drywell isolation as a function of particular instrumentation. The new Note is intended to apply to both primary containment and drywell isolation instrumentation functions. The justification is the same for both functions. Both the GGNS TS and the improved STS NUREG currently include the same Note in LCO 3.6.5.3, Drywell Isolation Valves, allowing the intermittent opening of drywell penetrations that have been isolated to comply with the TS ACTIONS. Since the drywell isolation instrumentation serves the drywell isolation function, the ACTIONs for the supporting instrumentation need not be more restrictive than the function it supports.

3.2 RCIC Steam Supply Line Low Pressure Isolation

The second proposed change revises the operability requirements for the RCIC steam supply line low pressure isolation instrumentation to be consistent with the operability requirements for the RCIC system.

The RCIC System is designed to provide adequate core cooling and control of reactor pressure vessel (RPV) water level following a RPV isolation accompanied by a loss of coolant flow from the feedwater system. The RCIC system uses a steam driven turbine pump to transfer water from the suction source to the RPV. The RCIC system is designed to operate automatically or manually for a wide range of reactor pressures, 150 psig to 1177 psig. Upon receipt of an initiation signal, the RCIC turbine accelerates to a specified speed. As the RCIC flow increases, the turbine control valve is automatically adjusted to maintain design flow. Exhaust steam from the RCIC turbine is discharged to the suppression pool. The exhaust piping is provided with a vacuum breaker line that penetrates the containment and is open to containment atmosphere.

The RCIC steam supply line pressure is monitored by installed pressure instrumentation. The primary function is to isolate the RCIC steam supply line when pressure is too low for effective RCIC turbine operation. This is an equipment protection function. The instruments are set to isolate the steam line and the RCIC pump suction valve when the steam line pressure is less than approximately 60 psig with a TS allowable value of not less than 53 psig. Low steam supply line pressure is a normal condition during the reactor heat-up period. Thus, the RCIC steam supply valves are isolated during reactor restart until the steam line pressure exceeds the low pressure setpoint. The low pressure isolation function causes delays in plant startup and in restoring RCIC to standby operation following restart.

Currently, operators begin placing the RCIC system in service by slowly warming the RCIC steam lines after steam pressure is sufficient to reset the low pressure isolation signal. Operating procedures involve opening the outboard isolation valve and warming the steam line by slowly throttling open the warm-up valve (i.e., the bypass valve). During the warm-up process, the steam supply initially flows through the piping to the main condenser via a steam trap bypass line. The trap bypass valve is cycled until the pressure in the supply line equalizes.

After the pressure is equalized, the inboard isolation valve and the turbine trip/throttle valve (TTV) are opened to allow placing RCIC in standby service.

The proposed change will allow the steam supply low pressure isolation instrumentation to be inoperable when RCIC is not required to be operable. This would allow operators to open the valves during reactor startup with pressure less than the low pressure isolation setpoint and allow for warm-up of the RCIC steam lines during plant startup. Once the pressure is sufficiently above the setpoint, the low steam pressure isolation function can be restored. The valves are not expected to be open for more than a few hours while the low pressure instrumentation is not available.

4.0 TECHNICAL ANALYSIS

4.1 TSTF-306 Adoption

Entergy has reviewed TSTF-306, Revision 2 and has determined that the proposed change and the associated justification are applicable to GGNS. The new Note to LCO 3.3.6.1 for the supporting isolation instrumentation provides consistency with the current Note for LCO 3.6.1.3 and LCO 3.6.5.3 for the isolation functions that they support. The same administrative controls described in the TS Bases for the PCIVs and Drywell isolation valves will be applied to the supporting instrumentation LCO. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when the need for primary containment or drywell isolation is indicated. Therefore, the proposed change does not significantly affect the ability of the containment isolation system to perform its safety function.

4.2 RCIC Steam Supply Line Low Pressure Isolation

The proposed TS change allows the RCIC steam line low pressure isolation function to be inoperable during the time that the RCIC system is not required to be operable. This will allow operators to keep the steam supply isolation valves open during reactor startup until reactor pressure reaches 150 psig when RCIC is required to be operable. The following discussion explains why the proposed change does not adversely affect either the RCIC function or the containment isolation function.

The current TS Bases for function 3.c of TS 3.3.6.1 states:

> Low RCIC steam supply line pressure indicates that the pressure of the steam line may be too low to continue operation of the RCIC turbine. This isolation is for equipment protection and is not assumed in any transient or accident analysis in the UFSAR. However, it also provides a diverse signal to indicate a possible system break. These instruments are included in the Technical Specifications (TS) because of the potential risk due to possible failure of the instruments preventing RCIC initiations.

As discussed in the Bases, one of the functions of the RCIC steam line low pressure isolation is to isolate the steam supply when pressure is too low for RCIC turbine operation. This function is not needed if the RCIC system has not yet been placed in standby service and is not required to be operable. However, as a precaution, operating procedures will require the TTV to be maintained closed during plant startup whenever the RCIC steam supply line penetration is not

isolated and the low pressure automatic isolation function is not available. This will preclude any inadvertent turbine operation while warming the steam lines at low pressure.

The TS Bases also states that the low pressure isolation instruments are included in the TS due to the potential risk that a possible failure of the instruments could cause an unnecessary isolation that prevents RCIC operation. The proposed change does not increase that risk because it only applies when the RCIC system is not required to be operable. In this respect, it is acceptable to match the operability of this instrumentation with RCIC system operability requirements.

Based on the above, the proposed change does not adversely affect the ability of the RCIC system to perform its safety function.

The RCIC low steam line pressure instruments also provide a diverse leak detection signal to indicate a system break. Even though the low pressure automatic isolation function will not be available for a short period during plant startup, the likelihood of a steam line break during the short period of time is low due to the low vulnerability to overpressurization. This isolation function is not specifically credited in any accident analysis or in any environmental qualification evaluations. A sufficient level of redundancy and diversity of methods used to automatically mitigate RCIC steam line breaks will continue to be required to be available to ensure consistency with the release assumptions used in the analyses for a DBA. The RCIC steam line isolation trip systems use a one-out-of-one logic. Each of the trip systems is connected to one of the two valves on the RCIC steam line penetration so that operation of either trip system isolates the penetration. The diverse methods of leak detection and isolation are discussed further below.

There are four RCIC system containment penetrations that are affected by the proposed change because the isolation logic for associated isolation valves includes an input signal from the low pressure instrumentation. The penetrations are:

Containment penetration 17, steam supply to RCIC turbine
Containment penetration 28, RCIC pump suction
Containment penetration 29, RCIC turbine exhaust
Containment penetration 75, RCIC turbine exhaust vacuum breaker

The steam supply line to the RCIC turbine branches off main steam line "A" between the reactor vessel and the inboard main steam isolation valve inside the drywell. The line then penetrates the drywell wall and the containment wall at penetration 17. The piping between the drywell and containment walls is enclosed within a guard pipe. This line has two automatic motor operated isolation valves. One is located inside the drywell and the other outside containment. These valves are normally open when RCIC is required to be operable to facilitate prompt initiation of core cooling. There is also a bypass line around the inboard isolation valve that is used to pre-warm the system piping following a refueling outage or maintenance, to preclude the possibility of thermal shock and prevent an isolation due to high flow during the warm-up period.

The three RCIC steam supply line containment isolation valves (inboard valve, outboard valve, and inboard bypass valve) for penetration 17 automatically isolate on various leak detection

signals which indicate a steam supply line break. The leak detection signals required by the TS include:

RCIC Steam Flow – High
RCIC Equipment Room Ambient Temperature – High
RCIC Steam Supply Line Pressure - Low
Main Steam Line Tunnel Ambient Temperature – High
RHR Equipment Ambient Room Temperature – High
RCIC/RHR Steam Line Flow – High

The operability of the instrument functions, except for the steam supply line low pressure, will continue to be required in MODES 1, 2, and 3 regardless of steam pressure. The capability for remote manual closure of these valves from the control room will also be available as required by TS 3.3.6.1 in the event containment isolation is necessary. Considering the availability of other diverse steam piping leak detection instrumentation, remote manual isolation capability, and the lower probability of piping overpressurization, the inoperability of the RCIC steam supply line low pressure isolation instrumentation during the normal low pressure start-up evolution does not adversely affect the containment isolation function for penetration 17.

The RCIC system has two sources of water for RPV injection. The normally preferred source is from the condensate storage tank (CST) located outside of the auxiliary building. The second source is from the suppression pool located inside containment. The RCIC pump suppression pool suction piping penetrates the containment at penetration 28. The suppression pool suction isolation valve at penetration 28 is closed whenever the RCIC system is aligned to the preferred CST source. The same diverse leak detection signals that isolate the steam supply line also isolate the RCIC pump suction isolation valve. Although the pump suction isolation valve is normally closed, it can be manually closed by remote switches in the control room, if opened. The outboard isolation barrier for this penetration is a closed system (see UFSAR Table 6.2-49). Therefore, the inoperability of the RCIC steam supply line instrumentation during normal steam line low pressure condition does not adversely affect the containment isolation function for penetration 28 due to the closed loop outboard barrier, the availability of diverse leak detection methods, the remote isolation capability, and the lower probability of an overpressurization event.

The turbine exhaust line penetrates the containment at penetration 29 and is submerged into the suppression pool below the water level. The exhaust vacuum breaker line penetrates the containment at penetration 75 and is open to the containment atmosphere. The exhaust vacuum breaker line is equipped with automatic isolation valves (one for penetration 29 and one for penetration 75) that automatically isolate on high drywell pressure provided the RCIC steam supply line pressure is low. Because the RCIC turbine exhaust line vacuum breaker isolation valves will not have automatic isolation capability while the steam supply low pressure permissive signal is unavailable, operating procedures will require the valves to remain closed until the RCIC steam supply low pressure instrumentation is restored.

Therefore, the proposed change does not significantly affect the ability of the containment isolation function.

The low pressure instruments do not provide any automatic function of mitigating steam leaks inside the drywell, but do provide leakage indication to the operators. Other leak detection

methods for monitoring RCIC steam leaks inside the drywell are listed in UFSAR Table 5.2-9. Thus, even though the low pressure instrumentation would not be required to be operable at less than 150 psig reactor steam dome pressure, there remain diverse methods of monitoring for RCIC steam leaks inside the drywell, such as drywell sump high flow rate, high radiation, high drywell temperature, high drywell cooler condensate flow rate, and high drywell pressure instrumentation.

A main steam line break is the postulated event that represents the enveloped evaluation of steam line failures outside containment. This evaluation is discussed in Section 15.6.4 of the Updated Final Safety Analysis Report (UFSAR). Allowing the RCIC steam line low pressure isolation function to be inoperable while normal steam pressure is low does not change the results of the bounding safety analysis.

The potential effects of a high energy line break in the steam supply to the RCIC turbine were evaluated as discussed in UFSAR Section 3C.2.4. The evaluation concluded that a combination of spatial separation and restraints ensures that no postulated failure of the steam piping to the RCIC turbine will prevent a safe shutdown of the plant or cause radioactive releases in excess of prescribed limits. Details of RCIC subcompartment pressurization analyses are discussed in UFSAR Appendix 3E. These analyses and conclusions are not adversely impacted by the proposed TS change.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met. In particular, 10 CFR 50 Appendix A, Criterion 54 requires piping systems penetrating primary reactor containment to be provided with leak detection, isolation, and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. There are no modifications proposed that would change compliance or the method of compliance with this regulation. The proposed change to the RCIC steam line isolation instrumentation TS requirements would allow one of the diverse methods of leak detection and automatic isolation to be inoperable during a time when the likelihood of a piping rupture is low due to low normal reactor pressure. Other diverse leak detection methods and isolation capabilities will be available during this time to maintain the containment design function.

Entergy has determined that the proposed changes do not require any exemptions or relief from regulatory requirements, other than the TS, and do not affect conformance with any GDC differently than described in the UFSAR.

5.2 No Significant Hazards Consideration

The amendment request involves changes to Technical Specification (TS) 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation." One change would incorporate generic change TSTF-306, Revision 2 to add a note allowing intermittent opening of penetration flow paths, under administrative control, that are isolated to comply with TS ACTIONS. The second would change the operability requirement for the Reactor Core Isolation Cooling (RCIC) steam supply line low pressure isolation instrumentation to be consistent with RCIC system operability requirements.

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

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

   Response: No.

   The proposed change to adopt TSTF-306 allows primary containment and drywell isolation valves to be unisolated under administrative controls when the associated isolation instrumentation is not operable. The isolation function is an accident mitigating function and is not an initiator of an accident previously evaluated. Administrative controls are required to be in effect when the valves are unisolated so that the penetration can be rapidly isolated when the need is indicated. Therefore the probability or consequences of previously evaluated accidents are not significantly increased.

   The proposed change also allows the RCIC turbine steam line low pressure containment isolation instrumentation to be inoperable during low startup operating pressures. These instruments primarily provide automatic isolation when steam line pressure is too low for RCIC turbine operation. The low pressure automatic isolation feature will only be unavailable during the time that the RCIC system is not required to be operable. Therefore the change does not adversely affect the ability of the RCIC system to perform its safety function.

   The RCIC steam line low pressure instruments also provide a diverse signal to indicate a possible system break. Even though the low pressure automatic isolation function will not be available for a short period during plant startup, the likelihood of a steam line break during the short period of time is low due to the low operating pressure. In addition, the safety function of providing containment integrity is maintained since there are other diverse leak detection instruments as well as other barriers or isolation capabilities that provide the isolation function.

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

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

Response: No.

The proposed change does not involve any physical alteration of plant equipment and does not change the method by which any safety-related system performs its function. The TS currently allow containment and drywell isolation valves to be open under administrative controls after being closed to comply with TS ACTIONS for inoperable valves. Extending this allowance to the supporting instrumentation does not introduce any new method of isolation that has not already been evaluated.

Allowing the RCIC turbine steam line low pressure isolation instrumentation to be inoperable during low startup operating pressures does not create the possibility of any new failure modes other than those previously evaluated. No new or different type of equipment will be installed. There are no new failure mechanisms or accident initiators introduced. The low pressure isolation is designed to terminate RCIC turbine operation at low steam pressures for equipment protection. However, this function is not required since the RCIC system is not required to be operable and the same function is accomplished by maintaining the turbine trip/throttle valve closed. The low pressure isolation function will continue to be required when the RCIC system is required to be operable.

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

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

Response: No.

The change to allow containment and drywell isolation valves to be unisolated under administrative control does not reduce any margins to safety since the proposed allowance for the supporting isolation instrumentation is no less restrictive than the allowance for the equipment it supports. When the valves are unisolated, the design basis function of containment isolation is maintained by administrative controls.

The change to allow the RCIC turbine steam line low pressure isolation instrumentation to be inoperable during low startup operating pressures does not reduce any margins to safety. The current bounding analysis for a steam line break outside of containment remains bounding for a RCIC steam break at lower pressures. In addition, the current high energy line break evaluations and subcompartment pressurization evaluations remain bounding for the low pressure condition. The design basis functions of containment isolation and containment integrity are maintained by the diverse leak detection instruments as well as other barriers or isolation capabilities that provide the isolation function.

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

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

5.3 Environmental Considerations

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

6.0 PRECEDENCE

The NRC has approved TSTF-306 for adoption by BWR licensees and has incorporated the TSTF into NUREG-1434, Revision 2.

Regarding the proposed change to the RCIC low pressure isolation requirements, the NRC has issued a similar Technical Specification amendment for the Vermont Yankee (VY) Nuclear Power Station. The amendment was issued in a letter from U.S. NRC to Mr. Michael Balduzzi, "Vermont Yankee Nuclear Power Station – Issuance of Amendment RE: HPCI and RCIC Isolation (TAC NO. MB0407)," dated April 20, 2001. There are a few differences between the Vermont Yankee amendment and the Grand Gulf amendment due to differences in plant design and TS vintage. VY is a BWR-4 with custom TS whereas Grand Gulf is a BWR-6 with TS that are written in accordance with the format and content of NUREG-1434. However, the concepts and justifications are essentially the same.

The VY amendment request included changes to the High Pressure Coolant Injection (HPCI) and RCIC steam supply pressure instrumentation operability requirements. Grand Gulf is a BWR-6 and does not have a HPCI system. Therefore this portion of the change is not applicable to Grand Gulf.

The reason for the VY change was to eliminate the need for operators to enter the steam tunnel to operate manual bypass valves that are used to equalize pressure around the steam supply isolation valves prior to opening them. The GGNS bypass valve can be remotely operated and is designed to automatically isolate. The reason for the GGNS change is to eliminate an unnecessary startup delay and allow the RCIC system to be restored sooner after plant restart.

Attachment 2

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Proposed Technical Specification Changes (mark-up)

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment and Drywell Isolation Instrumentation

LCO 3.3.6.1 The primary containment and drywell isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS 1. Penetration flow paths may be unisolated intermittently under administrative control.

NOTE (5)

2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.b, 5.b, 5.c, and 5.d AND 24 hours for Functions other than Functions 2.b, 5.b, 5.c, and 5.d
B. One or more automatic Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour

(continued)

Table 3.3.6.1-1 (page 3 of 5)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 44 inches water
b. RCIC Steam Line Flow Time Delay	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≥ 3 seconds and ≤ 7 seconds
c. RCIC Steam Supply Line Pressure – Low	~~1,2,3~~ (d)	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 53 psig
d. RCIC Turbine Exhaust Diaphragm Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 20 psig
e. RCIC Equipment Room Ambient Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 191°F
f. Main Steam Line Tunnel Ambient Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 191°F
g. Main Steam Line Tunnel Temperature Timer	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≤ 30 minutes
h. RHR Equipment Room Ambient Temperature – High	1,2,3	1 per room	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 171°F
i. RCIC/RHR Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 43 inches water

(continued)

(d) When the RCIC system is required to be OPERABLE per LCO 3.5.3.

Table 3.3.6.1-1 (page 5 of 5)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. RHR System Isolation					
a. RHR Equipment Room Ambient Temperature – High	1,2,3	1 per room	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 171°F
b. Reactor Vessel Water Level – Low, Level 3	1,2,3 (f)	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 10.8 inches
	(g) 3 (e) 4,5	2 (e)	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 10.8 inches
c. Reactor Steam Dome Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 150 psig
d. Drywell Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 1.43 psig
e. Manual Initiation	1,2,3	2	G	SR 3.3.6.1.7	NA

(e) Only one trip system required in MODES 4 and 5 with RHR Shutdown Cooling System integrity maintained.

(f) With reactor steam dome pressure greater than or equal to the RHR cut-in permissive pressure.

(g) With reactor steam dome pressure less than the RHR cut-in permissive pressure.

Attachment 3

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Changes to Technical Specification Bases Pages
For Information Only

BASES

APPLICABLE SAFETY ANALYSIS LCO, and APPLICABILITY

3.b. RCIC Steam Line Flow High Time Delay (continued)

Two channels for RCIC Steam Line Flow Time Delay Functions are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

3.c. RCIC Steam Supply Line Pressure—Low

Low RCIC steam supply line pressure indicates that the pressure of the steam may be too low to continue operation of the RCIC turbine. This isolation is for equipment protection and is not assumed in any transient or accident analysis in the UFSAR. However, it also provides a diverse signal to indicate a possible system break. These instruments are included in the Technical Specifications (TS) because of the potential for risk due to possible failure of the instruments preventing RCIC initiations.

when the RCIC system is required to be OPERABLE per LCO 3.5.3

The RCIC Steam Supply Line Pressure—Low signals are initiated from two transmitters that are connected to the system steam line. Two channels of RCIC Steam Supply Line Pressure—Low Functions are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value is selected to be high enough to prevent damage to the system turbine.

This Function isolates the Group 4 and 9 valves.

3.d. RCIC Turbine Exhaust Diaphragm Pressure—High

High turbine exhaust diaphragm pressure indicates that the pressure may be too high to continue operation of the associated system's turbine. That is, one of two exhaust diaphragms has ruptured and pressure is reaching turbine casing pressure limits. This isolation is for equipment protection and is not assumed in any transient or accident analysis in the UFSAR. These instruments are included in the TS because of the potential for risk due to possible failure of the instruments preventing RCIC initiations (Ref. 3).

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5.a. Ambient Temperature—High (continued)

Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are set low enough to detect a leak equivalent to 25 gpm.

The RHR Equipment Room Ambient Temperature—High Functions are only required to be OPERABLE in MODES 1, 2, and 3. In MODES 4 and 5, insufficient pressure and temperature are available to develop a significant steam leak in this piping and significant water leakage is protected by the Reactor Vessel Water Level—Low, Level 3 Function.

This function isolates the Group 3 valves.

5.b. Reactor Vessel Water Level—Low, Level 3

Low RPV water level indicates the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some reactor vessel interfaces occurs to begin isolating the potential sources of a break. The Reactor Vessel Water Level—Low, Level 3 Function associated with RHR Shutdown Cooling System isolation is not directly assumed in any transient or accident analysis, since bounding analyses are performed for large breaks such as MSLBs. The RHR Shutdown Cooling System isolation on Level 3 supports actions to ensure that the RPV water level does not drop below the top of the active fuel during a vessel draindown event through the 1E12-F008 and 1E12-F009 valves caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System.

Reactor Vessel Water Level—Low, Level 3 signals are initiated from level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels (two channels per trip system) of the Reactor Vessel Water Level—Low, Level 3 Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. As noted (footnote (d) (e) to Table 3.3.6.1-1), only two channels of the Reactor Vessel

(continued)

BASES (continued)

ACTIONS

Insert A

A Note has been provided to modify the ACTIONS related to isolation instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable primary containment isolation instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable primary containment isolation instrumentation channel.

A.1

Because of the diversity of sensors available to provide isolation signals and the redundancy of the isolation design, an allowable out of service time of 12 hours or 24 hours, depending on the Function, has been shown to be acceptable (Refs. 5 and 6) to permit restoration of any inoperable channel to OPERABLE status. Functions that share common instrumentation with the RPS have a 12 hour allowed out of service time consistent with the time provided for the associated RPS instrumentation channels. This out of service time is only acceptable provided the associated Function is still maintaining isolation capability (refer to Required Action B.1 Bases). If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue with no further restrictions. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an isolation), Condition C must be entered and its Required Action taken.

(continued)

INSERT A

The ACTIONS are modified by two Notes. Note 1 allows penetration flow path(s) to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for primary containment or drywell isolation is indicated.

Attachment 4

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List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Operating procedures will require the TTV to be maintained closed during plant startup whenever the RCIC steam supply line penetration is not isolated and the low pressure automatic isolation function is not available. This will preclude any inadvertent turbine operation while warming the steam lines at low pressure.		X	Within 60 days of amendment issuance.
Because the RCIC turbine exhaust line vacuum breaker isolation valves will not have automatic isolation capability while the steam supply low pressure permissive signal is unavailable, operating procedures will require the valves to remain closed until the RCIC steam supply low pressure instrumentation is restored.		X	Within 60 days of amendment issuance.