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GNRO-2007/00011

March 1, 2007

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

SUBJECT: License Amendment Request
Change to Technical Specifications to Allow Certain Types of Relief Valves to be Used as Isolation Devices
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

REFRENCES:
1. Letter GNRO-2005/00038, "License Amendment Request: Use of Relief Valves to Isolate Penetration Flow Paths," dated June 27, 2005 (ADAMS Accession No. ML052070689)
2. Letter GNRO-2006/00028, "Withdrawal of License Amendment Request: Use of Relief Valves to Isolate Penetration Flow Paths," dated May 5, 2006 (ADAMS Accession No. ML061300617)
3. Letter from USNRC to Mr. George A. Williams of Entergy, "Grand Gulf Nuclear Station, Unit 1 (GGNS), Re: Withdrawal of an Amendment Request (ADAMS Accession No. ML061950276)

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 (GGNS). Entergy proposes to add a note to the Required Actions of Technical Specification (TS) 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)". GGNS TS 3.6.1.3 requires specific actions to be taken for inoperable PCIVs. The TS Required Actions include isolating the affected penetration by use of a closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. These isolation methods are consistent with the BWR-6 Standard Technical Specifications, NUREG-1434. The proposed change to TS 3.6.1.3 would allow certain relief valves to be used to isolate penetration flow paths without being de-activated.

Entergy proposed a similar change by Reference 1, but subsequently withdrew the request by References 2 and 3. The original request would have allowed any relief valve with a relief setpoint of at least 1.5 times containment design pressure to be used to isolate the penetration flow path associated with an inoperable PCIV. This proposed change is more restrictive than the original request and includes defense-in-depth protection for the containment function. Acceptable relief valves are those that have a relief setpoint of at least 1.5 times containment design pressure (i.e., at least 23 psig) and meet one of the following criteria: 1) the relief valve is one-inch nominal size or less or 2) the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.

The criteria for acceptable relief valves are consistent with previous NRC decisions that found that these types of penetrations and valves do not require leakage testing because the probability of significant leakage during an accident is small. The NRC decisions are reflected in 10 CFR 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors," and in an approved exemption to Appendix J containment leakage testing requirements for South Texas Project. Entergy is not proposing to change leakage testing requirements; however, the same rationale and conclusions are applicable to this requested TS change.

The proposed change has 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 this change involves no significant hazards consideration. The bases for these determinations are included in the attached submittal.

Entergy requests approval of the proposed amendment by November 30, 2007. Once approved, the amendment shall be implemented within 90 days. Although this request is neither exigent nor emergency, your prompt review is requested.

The proposed change does not include any new commitments. 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 March 1, 2007.

Sincerely,

WRB/RWB/amt

Attachments:
1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. Changes to Technical Specification Bases Pages – For Information Only

cc: (See Next Page)

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Attachment 1

GNRO-2007/00011

Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

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

The proposed change will revise the Operating License to amend the Technical Specification Required Actions for inoperable Primary Containment Isolation Valves (PCIVs). Entergy proposes to add a note to the Required Actions of Technical Specification (TS) 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)". GGNS TS 3.6.1.3 requires specific actions to be taken for inoperable PCIVs. The TS Required Actions include isolating the affected penetration by use of a closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. The new note would allow certain relief valves to be used to isolate penetration flow paths without being de-activated.

2.0 PROPOSED CHANGE

Technical Specification 3.6.1.3 requires each PCIV to be OPERABLE in MODES 1, 2, and 3 and some PCIVs to be OPERABLE during certain other shutdown and refueling conditions. If a PCIV is inoperable in one or more penetration flow paths, then Condition A must be entered and the containment penetration flow paths must be isolated. Condition B requires similar actions for two or more inoperable PCIVs in one or more penetration flow paths. The methods of performing this isolation are stipulated in TS Required Actions A.1 and B.1. The methods include: at least one closed and de-activated automatic isolation valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

The following note is proposed to TS 3.6.1.3 Required Actions A.1 and B. 1 to allow certain relief valves to be used to isolate penetration flow paths without being de-activated.

> ----------NOTE----------
> Relief valves are not required to be de-activated provided the relief setpoint is at least 23 psig and one of the following criteria is met:
> 1. the relief valve is one-inch nominal size or less, or
> 2. the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.
> ----------

Appropriate Bases changes which reflect the new note are provided in Attachment 3 for your information. Entergy will implement the TS Bases changes in accordance with the GGNS Bases Control Program, TS 5.5.11.

3.0 BACKGROUND

Pressure relief devices are installed on various ASME Code Class 1, 2, and 3 piping systems for overpressure protection to provide adequate assurance that those piping systems maintain their integrity and can perform their design function. The ASME Boiler and Pressure Vessel Code, Division 1, Section III, Articles NB-7000, NC-7000, and ND-7000 establish

design provisions for overpressure protection. In addition to providing overpressure protection some relief valves also function as containment isolation devices. Both the opening pressure relief function and the normally closed isolation function are important to plant safety. However, the current TS actions may require disabling a relief valve's automatic opening function when a PCIV is inoperable at a containment penetration. The proposed TS change is intended to preserve the overpressure protective function while providing adequate defense-in-depth protection for the containment function.

The design objective of the containment isolation system is to allow the normal or emergency passage of fluids through the containment boundary while preserving the ability of the boundary to prevent or limit the escape of fission products that may result from postulated accidents. Typically, two barriers are provided for each containment penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analysis. One of these barriers may be other than a PCIV, such as a closed system. Some containment penetrations may be designed with only one barrier, such as a welded spare penetration. The types of valves typically used as PCIVs at GGNS include gate vales, globe valves, check valves, and relief valves. The GGNS plant design uses 18 relief valves as PCIVs. Some of the relief valves were installed to protect isolated piping from thermally induced overpressurization as discussed in Generic Letter (GL) 96-06, "Assurance of Equipment Operability and Containment Integrity During Design-Basis Accident Conditions."

The PCIVs help ensure that an adequate primary containment boundary is maintained during and after an accident by isolating the potential release paths to the environment. With one or more PCIVs in a penetration flow path inoperable, the TS require the affected penetration flow path to be isolated. The current method of isolation is the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that are considered to meet this criterion include a closed and de-activated automatic valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. The TS Bases also state that the device used to isolate the penetration flow path should be the closest available one to the primary containment.

Typically, the device used to isolate the penetration flow path is one of the penetration PCIVs. In some cases, one of the PCIVs for a particular containment penetration may be a relief valve. However, the current TS Actions do not specifically recognize a closed relief valve as an acceptable method of isolating a penetration flow path. Thus, special measures may need to be taken to comply with the TS Required Actions, such as replacing the relief valve with a blind flange or de-activating the relief valve by installing a gag. While such actions may provide additional assurance of preserving the containment isolation function, it may also have adverse safety affects such as disabling the overpressure protective safety feature, causing additional safety system unavailability time, and increasing occupational dose.

Similarly, in the situation where a penetration is designed with only one PCIV and it cannot be closed, the next valve in the flow path (i.e., the next closest to the containment) must be closed. If a relief valve is installed on the piping between that valve and the containment, the relief valve may also be considered another penetration flow path. In this case, special measures must likewise be taken to comply with the TS Required Actions, such as replacing the relief valve with a blind flange or de-activating it by gagging the relief valve closed. The

proposed TS change will allow certain relief valves to be used to meet the TS Required Action without disabling its relief function. Based upon GGNS experience, the GGNS proposed TS change would be applied infrequently and it would be unlikely that it would be used for more than one relief valve at a time.

4.0 TECHNICAL ANALYSIS

Containment isolation devices consist of either passive devices or active (automatic) devices. Passive devices are those in which mechanical movement need not occur in order for the component to perform its intended safety function. Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Relief valves are also considered to be passive isolation devices because no mechanical movement is required to perform the isolation function. Relief valves are designed to be normally closed to preserve the piping boundary integrity yet automatically open on an abnormal process pressure to protect the piping from overpressure conditions.

With one or more PCIVs in a penetration flow path inoperable, the TS require the affected penetration flow path to be isolated. The current method of isolation is the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that are considered to meet this criterion include a closed and de-activated automatic valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. . However, the current TS Actions do not specifically recognize a normally closed relief valve as an acceptable method of isolating a penetration flow path. Thus, special measures may need to be taken to comply with the TS Required Actions, such as replacing the relief valve with a blind flange or de-activating the relief valve by installing a gag. Entergy is requesting that certain relief valves be allowed as an acceptable method of isolating a penetration flow path without being de-activated. This would preserve the overpressurization protection function as well as the containment design function.

Entergy proposes to add a note to the TS to allow a relief valve to be used to comply with TS Actions A.1 and B.1 without being deactivated provided it has a relief setpoint of at least 1.5 times containment design pressure (i.e., at least 23 psig) and meets one of the following criteria:

1. the relief valve is one-inch nominal size or less, or
2. the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.

The above criteria describe a set of penetrations where the leakage paths do not pose a credible threat to public health and safety. The failure of a relief valve to remain closed during or following an accident is considered a low probability because relief valves are passive isolation devices that do not require mechanical movement to perform the isolation function and the relief setpoint provides sufficient margin to preclude the potential for premature opening due to containment post-accident pressures. A relief valve that has a relief setpoint greater than 1.5 times the containment design pressure provides reasonable confidence that the relief valve will remain closed under containment pressure during and after an accident. Additional criteria are required to be met to provide defense-in-depth protection. Relief valves that meet criterion 1 above provide an additional physical barrier in that in addition to the

closed relief valve, the size restriction would limit leakage such that a large early release would not occur. Penetration configurations that meet criterion 2 provide an additional physical barrier of a closed system that is rated higher than the containment design pressure. These criteria are consistent with regulatory precedence in the areas of containment isolation design and risk-based leakage testing requirements as further discussed below and in Section 6.0 of this attachment.

Relief Valve Setpoint

The relevant failure mode for a relief valve in regards to a containment isolation function is premature or inadvertent opening. The Standard Review Plan (SRP), NUREG-0800, addresses this concern by establishing an acceptable setpoint margin for relief valves to be used as isolation devices. Section 6.2.4, "Containment Isolation System" of the SRP states, "Relief valves may be used as isolation valves provided the relief setpoint is greater than 1.5 times the containment design pressure." This relief setpoint requirement is also consistent with ANSI/ANS 56.2-1984, "Containment Isolation Provisions for Fluid Systems After a LOCA," which states that the set pressure of the relief valve shall be at least 50 percent greater than containment design pressure. The relief setpoint requirement provides reasonable confidence that the relief valve will remain in its normally closed position following an accident by reducing the potential for inadvertent opening due to containment post-accident pressures.

A relief valve that has a relief setpoint greater than 1.5 times the containment design pressure provides ample margin to ensure that an adequate primary containment boundary is maintained during and after an accident. The margin between the design basis LOCA maximum peak containment pressure (Pa) and the relief valve setpoint is actually greater than 50% since it includes the containment design margin. For example, since the GGNS containment design pressure is 15 psig, the relief setpoint for the relief valve must be greater than 22.5 psig (15 psig x 1.5). In this example, the relief setpoint is 7.5 psig above containment design pressure but there is actually a larger margin of 11 psig above Pa (11.5 psig for GGNS). Closed relief valves with relief setpoints of this margin provide an isolation barrier alternative that is less susceptible to a single failure (inadvertent opening) yet still preserves the overpressure protection that the component was intended to provide.

Relief Valve Size

Although the relief valve setpoint provides reasonable assurance of containment penetration isolation, additional criteria are established to provide defense-in-depth protection. Compliance with any one of these criteria provides additional assurance that the risk of a radiation release from containment leakage is low. One of the criteria is that the relief valve be one-inch nominal size or less.

Relief valves that are one-inch or smaller provide an additional physical barrier in that, even in the unlikely event that a relief valve were to fail to remain closed during or following an accident, the size restriction would limit leakage such that a large early release would not occur. By definition, penetrations one-inch and smaller do not contribute to large early releases. Since the small size of the valve restricts containment leakage flow, it is unnecessary to deactivate the normally closed relief valve. As can be seen from Updated FSAR Table 6.2-44, "Containment Isolation Valve Information," the GGNS plant design uses

18 relief valves as PCIVs. Most of these relief valves (14 of the 18), are one-inch or smaller. In addition, many of these smaller relief valves also meet criterion 2 because the penetration flow paths through the relief valves are into closed systems.

Closed System

Relief valves that are larger than one-inch would not be significant contributors to containment leakage if the pathway mass and inventory was contained within a closed system. The GGNS Safety Evaluation Report (SER), NUREG-0831, identified requirements for closed systems outside the containment which form a second isolation boundary. The SER states that a closed system outside the containment shall be designed to Quality Group B and seismic Category 1 standards. Valves which isolate the branch lines of these closed systems shall be normally closed and under strict administrative control. Typical closed systems used as isolation barriers are identified in Tables 6.2-44 and 6.2-49 of the GGNS Updated FSAR.

There are four relief valves used in the GGNS design as PCIVs that are larger than one-inch. The largest of these is six inches. The relief function of one has been disabled by a modification so that the relief valve cannot open and the containment isolation function is assured. The remaining three relief valves are installed on closed systems that are filled with water on the outboard side of the containment. The lines are maintained at a pressure that is higher than primary containment pressure by jockey pumps or hydrostatic head; thus precluding any leakage from primary containment. The relief valves discharge into the suppression pool such that they are sealed from the containment atmosphere. Even if leakage from containment occurred by backflow through the relief valves, it would be into a system which forms a closed loop outside the primary containment and any containment leakage would return to primary containment through this closed system.

Conclusion

In summary, the proposed TS change allows certain relief valves to be used to isolate a containment penetration flow path without being de-activated. This preserves both the containment isolation function and the system overpressure protection function. The failure of a relief valve to remain closed during or following an accident is considered a low probability because relief valves are passive isolation devices that do not require mechanical movement to perform the isolation function and the relief setpoint provides sufficient margin to preclude the potential for premature opening due to containment post-accident pressures. Relief valves that are one-inch or smaller provide an additional physical barrier because the size restriction would limit leakage such that a large early release would not occur. Penetration configurations that meet criterion 2 provide an additional physical barrier of a closed system. In the unlikely event that a relief valve larger than one-inch were to fail to remain closed, the leakage would be into a system which forms a closed loop outside primary containment and any containment leakage would return to primary containment through this closed loop. The proposed change also avoids unnecessary safety system unavailability time and unnecessary occupational dose that would be associated with de-activating the relief valve.

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. 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 General Design Criterion (GDC) differently than described in the Updated Final Safety Analysis Report (UFSAR.)

General Design Criteria 54, 55, 56, and 57 of 10 CFR 50 Appendix A require that piping systems penetrating primary reactor containment be provided with isolation capabilities. The proposed change does not alter any of the operability or functional design requirements for containment isolation features. The proposed change only affects the measures used to compensate for inoperable Primary Containment Isolation Valves (PCIVs). While these measures are not specifically discussed in the Standard Review Plan (SRP), the SRP does provide specific criteria necessary to meet the relevant requirements of the regulations and provides guidelines for acceptable alternate containment isolation provisions. Section II, "Acceptance Criteria," item g states, "Relief valves may be used as isolation valves provided the relief setpoint is greater than 1.5 times the containment design pressure." The proposed change will allow relief valves that meet this criterion to be used to preserve the containment boundary function in accordance with the intent of the Technical Specification Required Actions.

The GGNS Safety Evaluation Report, NUREG-0831, identified acceptable alternative criteria to the General Design Criteria for closed systems outside the containment which form a second isolation boundary. Section 6.2.4, "Containment Isolation," states that a closed system outside the containment shall be designed to Quality group B and seismic Category 1 standards. Valves which isolate the branch lines of these closed systems shall be normally closed and under strict administrative control. These requirements are added to the TS Bases changes provided in Attachment 3 to clarify the requirements of a closed system apply to the Note.

5.2 No Significant Hazards Consideration

Entergy proposes to amend the Grand Gulf Technical Specifications (TS) concerning the Required Actions to be taken for inoperable primary containment isolation valves (PCIVs). The current TS Required Actions specify that the affected penetration flow path must be isolated by one or more of the following methods: closed and de-activated automatic valves, closed manual valves, blind flanges, and check valves with flow through the valve secured. The proposed change would allow relief valves to be used for isolating the penetration flow path without being de-activated provided that the relief setpoint is greater than 1.5 times containment design pressure and meets one of the following criteria: 1) the relief valve is one-inch nominal size or less, or 2) the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) 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.

   Primary Containment Isolation Valves (PCIVs) are accident mitigating features designed to limit releases from the containment following an accident. The TS specify actions to be taken to preserve the containment isolation function if a PCIV is inoperable. These actions include isolating the penetration flow path by specific methods including, closed and de-activated automatic valves, closed manual valves, blind flanges, and check valves with flow through the valve secured. The current TS Actions do not specifically recognize a closed relief valve as an acceptable method of isolating a penetration flow path. Thus, special measures may need to be taken to comply with the TS Required Actions, such as replacing the relief valve with a blind flange or de-activating the relief valve by installing a gag. While such actions may provide additional assurance of preserving the containment isolation function, it may also have adverse safety affects such as disabling the overpressure protective safety feature, causing additional safety system unavailability time, and increasing occupational dose.

   The proposed change would allow certain relief valves to be used for isolating the penetration flow path without being de-activated. The proposed TS changes do not alter the design, operation, or capability of PCIVs. Relief valves are designed to be normally closed to preserve the piping boundary integrity yet automatically open on an abnormal process pressure to protect the piping from overpressure conditions. Relief valves may also serve as passive containment isolation devices (i.e., they do not require mechanical movement to perform the isolation function). The proposed TS changes preserve both the containment isolation and piping overpressure protection functions.

   The failure of a relief valve to remain closed during or following an accident is considered a low probability because relief valves are passive isolation devices that do not require mechanical movement to perform the isolation function and the relief setpoint provides sufficient margin to preclude the potential for premature opening due to containment post-accident pressures. Additional criteria are established to provide defense-in-depth protection. Relief valves that are one-inch or smaller provide an additional physical barrier in that, even in the unlikely event that a relief valve were to fail to remain fully closed during or following an accident, the size restriction would limit leakage such that a large early release would not occur. By definition, penetrations one-inch and smaller do not contribute to large early releases. Larger relief valves may be used as isolation devices provided that the containment penetration flow path through the relief valve would be contained in a closed system. In the unlikely event that a relief valve were to fail to remain closed, the leakage would be into a system which forms a closed loop outside primary containment and any containment leakage would return to primary containment through this closed loop.

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 introduce any new modes of plant operation or adversely affect the design function or operation of safety features. The proposed TS change allows use of existing plant equipment as compensatory measures to maintain the containment isolation design intent when the normal isolation features are inoperable. Since relief valves used for this purpose will not be disabled by gags or blind flanges, the system piping overpressure protection design feature will also be preserved.

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 safety margin associated with this change is that associated with preserving the containment integrity. NUREG-0800, the Standard Review Plan, recognizes that relief valves with relief setpoints greater than 1.5 times containment design pressure are acceptable as containment isolation devices. Closed relief valves with relief setpoints of this margin provide an isolation alternative that is less susceptible to a single failure (i.e., inadvertent opening) yet still preserves the overpressure protection that the component was intended to provide. The failure of a relief valve to remain closed during or following an accident is considered a low probability because relief valves are passive isolation devices that do not require mechanical movement to perform the isolation function and the relief setpoint provides sufficient margin to preclude the potential for premature opening due to containment post-accident pressures. Defense-in-depth containment leakage protection is provided by additional TS criteria that limit the use of relief valves to those one-inch or less in size or those where containment leakage would be into a closed system whose piping pressure rating exceeds the containment design pressure rating. Relief valves that are one-inch or smaller provide an additional physical barrier in that, even in the unlikely event that a relief valve were to fail to remain closed during or following an accident, the size restriction would limit leakage such that a large early release would not occur. In the unlikely event that a relief valve larger than one-inch were to fail to remain closed, the leakage would be into a system which forms a closed loop outside primary containment and any containment leakage would return to primary containment through this closed loop.

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

Entergy's proposed change is consistent with NRC precedence regarding containment isolation provisions. The Standard Review Plan, NUREG-0800 recognizes the use of a relief valve as an acceptable containment isolation device. NUREG-0800 section 6.2.4 states in part, "Specific criteria necessary to meet the relevant requirements of the regulations...and guidelines for acceptable alternate containment isolation provisions for certain classes of lines are as follows... g. Relief valves may be used as isolation valves provided the relief setpoint is greater than 1.5 times the containment design pressure."

The additional criteria used for defense-in-depth containment leakage protection are consistent with regulatory precedence regarding relaxations of containment leakage testing requirements. Although Entergy is not requesting any changes to containment leakage testing requirements, the same rationale and conclusions are applied to this requested TS change.

The NRC Commission has allowed similar types of penetrations and valves to be excluded from the scope of Appendix J containment leakage testing through issuance of 10 CFR 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors." The NRC has also approved an exemption to certain containment leakage testing requirements for South Texas Project. The basis for these approvals was that containment leakage through these types of penetrations and valves were determined to not contribute in a significant way to safety or increased risk.

10 CFR 50.69 permits licensees to request license amendments to remove certain systems, structures, and components (SSCs) of low safety significance from the scope of certain identified special treatment requirements and revise requirements for SSCs of greater safety significance. As part of the rule, the Commission determined that Type C testing, normally required by 10 CFR 50 Appendix J, was not necessary for valves that are determined to be of low safety significance and that meet one or more of the following criteria:

1. The valve is required to be open under accident conditions to prevent or mitigate core damage events,
2. The valve is normally closed and in a physically closed, water-filled system.
3. The valve is in a physically closed system whose piping pressure rating exceeds the containment design pressure rating and is not connected to the reactor coolant pressure boundary.
4. The valve is 1-inch nominal pipe size or less.

Criterion 1 above does not apply to the proposed TS change because relief valves that would serve as isolation devices are not required to be open under accident conditions. The wording of criteria 2 and 3 implies that the valve is internal to the piping system. Although the relief valves are installed on the external boundary of the piping, these principles still apply. Criterion 2 refers to normally closed valves and criterion 3 to valves that may be normally open but actuate to close. Since relief valves are normally closed, criterion 2 is applied and is conservatively modified to include the piping pressure rating requirements of criterion 3. Criterion 4 is also applied to the proposed TS change.

The basis for allowing the Appendix J testing scope reduction is given in the Federal Register Notice (FRN) published on November 22, 2004 (Reference 2). The FRN notes that it assumes that defense-in-depth is maintained by ensuring with reasonable confidence that the containment isolation valves are capable of performing their close function. The FRN also notes that the effect of containment leakage on risk was examined in detail as part of the 10 CFR 50 Appendix J Option B rulemaking. These studies concluded that the containment leakage necessary to cause a significant increase in risk must typically be approximately 100 times the TS leak rate limit of La. The FRN further states that "it is improbable that even the leakage of multiple valves in the categories under consideration would exceed this amount."

The GGNS proposed TS change provides reasonable confidence that the relief valve will perform its close function by requiring it to have a relief setpoint at least 1.5 times containment pressure. Relief valves are designed to be normally closed and the relief setpoint provides adequate margin to preclude the potential for opening due to containment post-accident pressures. Also, the proposed TS criteria provides defense-in-depth protection by limiting the size of the relief valve to one-inch or smaller, unless the containment flow path through the relief valve is into a closed system. Although the NRC approved the exclusion of routine Type C containment leakage testing for numerous valves, the GGNS proposed TS change would be applied infrequently and it would be unlikely that it would be used for more than one relief valve at a time.

7.0 REFERENCES

1. Letter from Mr. William D. Beckner, USNRC, to Mr. James Davis, Nuclear Energy Institute, dated October 1, 1997.
2. Federal Register Notice (FRN) Volume 69, No. 224, published on November 22, 2004 (680027-680028)
3. South Texas Project, Units 1 and 2 – Safety Evaluation on Exemption Requests From Special Treatment Requirements of 10 CFR Parts 21, 50, and 100.

Attachment 2

GNRO-2007/00011

Proposed Technical Specification Changes (mark-up)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one PCIV inoperable except due to leakage not within limit.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 hours except for main steam line AND 8 hours for main steam line
	AND	
	A.2 --------NOTE-------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside primary containment, drywell, and steam tunnel AND Prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment, drywell, or steam tunnel

----------NOTE----------
Relief valves are not required to be de-activated provided the relief setpoint is at least 23 psig and one of the following criteria is met:
1. the relief valve is one-inch nominal size or less, or
2. the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.

(continued)

ACTIONS (continued)

CONDITION		REQUIRED ACTION	COMPLETION TIME
B. One or more penetration flow paths with two PCIVs inoperable except due to leakage not within limit.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
C. One or more penetration flow paths with leakage rate not within limit except for purge valve leakage.	C.1	Restore leakage rate to within limit.	4 hours

(continued)

----------NOTE----------
Relief valves are not required to be de-activated provided the relief setpoint is at least 23 psig and one of the following criteria is met:
1. the relief valve is one-inch nominal size or less, or
2. the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.

(b) SERI is required to notify the NRC in writing prior to any change in (i) the terms or conditions of any new or existing sale or lease agreements executed as part of the above authorized financial transactions, (ii) the CGNS Unit 1 operating agreement, (iii) the existing property insurance coverage for CGNS Unit 1 that would materially alter the representations and conditions set forth in the Staff's Safety Evaluation Report dated December 19, 1988 attached to Amendment No. 54. In addition, SERI is required to notify the NRC of any action by a lessor or other successor in interest to SERI that may have an effect on the operation of the facility.

C. The license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

Entergy Operations, Inc. is authorized to operate the facility at reactor core power levels not in excess of 3898 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 169 are hereby incorporated into this license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

The Surveillance Requirements (SRs) for Diesel Generator 12 contained in the Technical Specifications and listed below, are not required to be performed immediately upon implementation of Amendment No. ~~169~~. The SRs listed below shall be successfully demonstrated at the next regularly scheduled performance.

SR 3.8.1.9,
SR 3.8.1.10, and
SR 3.8.1.14

Insert new Amendment No.

Attachment 3

GNRO-2007/00011

Changes to Technical Specification Bases Pages
For Information Only

BASES

ACTIONS (continued)

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 isolation is indicated.

A second Note has been added to provide clarification that, for the purpose of this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable PCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable PCIVs are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS are modified by Notes 3 and 4. These Notes ensure appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable PCIV (e.g., an Emergency Core Cooling System subsystem is inoperable due to a failed open test return valve, or when the primary containment leakage limits are exceeded). Pursuant to LCO 3.0.6, these ACTIONS are not required even when the associated LCO is not met. Therefore, Notes 3 and 4 are added to require the proper actions to be taken.

A.1 and A.2

With one or more penetration flow paths with one PCIV inoperable except for inoperability due to leakage not within a limit specified in an SR to this LCO, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest one available to the primary containment. The Required Action must be completed within the 4 hour Completion Time (8 hours for main steam lines). The specified time period of 4 hours is reasonable considering the time required to isolate the penetration and the relative importance of supporting primary containment

INSERT

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident, and no longer capable of being automatically isolated, will be isolated should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification that those devices outside primary containment, drywell, and steam tunnel and capable of being mispositioned are in the correct position. The Completion Time for this verification of "once per 31 days for isolation devices outside primary containment, drywell, and steam tunnel," is appropriate because the devices are operated under administrative controls and the probability of their misalignment is low. For devices inside primary containment, drywell, or steam tunnel, the specified time period of "prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days," is based on engineering judgment and is considered reasonable in view of the inaccessibility of the devices and the existence of other administrative controls ensuring that device misalignment is an unlikely possibility.

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment; once they have been verified to be in the proper position, is low.

B.1

With one or more penetration flow paths with two PCIVs inoperable except due to leakage not within limits, either the inoperable PCIVs must be restored to OPERABLE status or the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1.

INSERT

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.9 (continued)

pressurized and primary containment is required. In some instances, the valves are required to be capable of automatically closing during MODES other than MODES 1, 2, and 3. However, specific leakage limits are not applicable in these other MODES or conditions.

REFERENCES

1. UFSAR, Chapter 15.
2. UFSAR, Section 6.2.
3. 10 CFR 50, Appendix J.
4. NUREG-0831, Safety Evaluation Report, Supplement 1 section 6.2.4.

BASES INSERTS

INSERT

This Action is modified by a Note which allows automatic relief valves with a relief setpoint of at least 1.5 times containment design pressure (i.e., 23 psig) to be used to isolate penetration flow paths without being de-activated provided one of the following criteria is met: 1) the relief valve is one-inch nominal size or less or 2) the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating. This preserves both the containment isolation function and the system overpressure protection function. The Note also avoids unnecessary safety system unavailability time and unnecessary occupational dose that would be associated with de-activating the relief valve. The Note applies to relief valves employed as isolation devices in either the backflow or forward (relief) flow direction. The failure of a relief valve to remain closed during or following an accident is considered a low probability because relief valves are passive isolation devices that do not require mechanical movement to perform the isolation function and the relief setpoint provides sufficient margin to preclude the potential for premature opening due to containment post-accident pressures. Relief valves that are one-inch or smaller provide an additional physical barrier because the size restriction would limit leakage such that a large early release would not occur. Penetration configurations that meet criterion 2 provide an additional physical barrier of a closed system. In the unlikely event that a relief valve larger than one-inch were to fail to remain closed, the leakage would be into a system which forms a closed loop outside primary containment and any containment leakage would return to primary containment through this closed loop. In accordance with reference 4, a closed system outside the containment shall meet Quality Group B and seismic Category 1 standards. Valves which isolate the branch lines of these closed systems are normally closed and under strict administrative control. Typical closed systems used as isolation barriers are identified in tables 6.2-44 and 6.2-49 of reference 2.