Entergy

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June 2, 2005

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

SUBJECT: Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket No. 50-293
License No. DPR-35

Technical Specifications Amendment Request to Revise Reactor Coolant System Leakage Detection System Instrumentation Requirements and Actions

REFERENCE: NUREG-1433, Standard Technical Specifications for General Electric Plants, BWR/4, Revision 3

LETTER NUMBER: 2.05.009

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations Inc. (Entergy) hereby proposes to amend its Facility Operating License, DPR-35. The proposed changes would revise the Operating License, Technical Specifications (TS) operability requirements to relocate the drywell equipment drain sump monitoring system requirements to the Final Safety Analysis Report, since these requirements do not meet the criteria for inclusion in the TS as presented in 10 CFR 50.36(c)(2)(ii). An additional change will provide allowed repair times for discovered inoperabilities in the remaining leakage detection systems required by TS 3.6.C.2. Current actions for any inoperable reactor coolant leakage detection system, which require an immediate plant shutdown when one or more of these specifications is not met, are revised to more appropriately address the degraded condition without imposing unnecessary plant shutdown transients. These changes are consistent with Standard Technical Specifications (NUREG-1433, Revision 3) and changes previously approved by the NRC for other boiling water reactors. Entergy has reviewed the proposed amendment in accordance with 10 CFR 50.92 and concludes it does not involve a significant hazards consideration.

Entergy requests approval of the proposed amendment by June 8, 2006. Once approved, the amendment shall be implemented within 60 days.

Commitments made in this letter are contained in Attachment 2.

A001

If you have any questions or require additional information, please contact Bryan Ford at (508) 830-8403.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 2nd day of June 2005.

Sincerely,

Michael A. Balduzzi

Michael A. Balduzzi

ERS/dm
Enclosure: Evaluation of the Proposed Change – 7 pages
Attachments: 1. Proposed Technical Specification and Bases Changes (mark-up) – 7 pages
2. List of Regulatory Commitments – 1 page

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ENCLOSURE

EVALUATION OF THE PROPOSED CHANGE

ENCLOSURE

Evaluation of the Proposed Change

Subject: Technical Specifications Amendment Request to Revise Reactor Coolant System Leakage Detection System Instrumentation Requirements and Actions

1. DESCRIPTION

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1. DESCRIPTION

Entergy Nuclear Operations, Inc. (Entergy) is requesting to amend Operating License DPR-35 for Pilgrim Nuclear Power Station (PNPS). The proposed changes would revise the Operating License, Technical Specifications (TS) to relocate operability requirements for the drywell equipment drain sump monitoring system to the Final Safety Analysis Report (FSAR), since these requirements do not meet the criteria for inclusion in the TS as presented in 10 CFR 50.36(c)(2)(ii). An additional change will provide allowed repair times for discovered inoperabilities in the remaining leakage detection systems required by TS 3.6.C.2. Current actions for any inoperable reactor coolant leakage detection system, which require an immediate plant shutdown when one or more of these specifications is not met, are revised to more appropriately address the degraded condition without imposing unnecessary plant shutdown transients.

2. PROPOSED CHANGES

2.1 Revise TS 4.6.C.1 to eliminate "by monitoring the coolant leakage detection systems required to be operable by 3.6.C.2".

2.2 Revise TS 3.6.C.2.a.1 and 4.6.C.2.a by adding the limitation "floor drain" such that the requirement reads "drywell floor drain sump monitoring system". The Bases are also clarified consistent with this change, which results in relocating the drywell equipment drain sump portion of the monitoring system from the TS requirements. Additional editorial changes to revise "one" and "each" to "the".

2.3 Revise TS 3.6.C.2.b.1 to replace "At least one drywell sump monitoring system shall be Operable;" with the following insert:

> "With the drywell floor drain monitoring system required by 3.6.C.2.a.1 inoperable, restore it to Operable status within 30 days,"

2.4 Revise TS 3.6.C.2.b.2 to change the allowed restoration time from "31" days to "30" days and replace "At least one gaseous or particulate radioactivity monitoring channel must be operable; otherwise..." with the following insert:

> "With both the gaseous and particulate radioactivity monitoring channels required by 3.6.C.2.a.2 and 3.6.C.2.a.3 inoperable,"

Additionally in TS 3.6.C.2.b.2, replace "provided grab samples are obtained and analyzed" with "provided drywell atmosphere grab samples are analyzed" and reword "..., or be in Hot Shutdown..." to read "...; otherwise, be in Hot Shutdown... ." Also, the specified grab sample frequency is changed from every 24 hours to every 12 hours.

2.5 Revise TS 3.6.C.2.c to include an intermediate shutdown requirement by adding "...in Hot Shutdown within the next 12 hours and... ." Additionally, add "the following" before "24 hours" such that TS 3.6.C.2.c reads as follows:

> "With no required leakage detection systems Operable, be in Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours."

2.6 Revise the frequency for TS Surveillance Requirement 4.6.C.2.b.1 to perform an instrument check from at least once "per day," to at least once "every 12 hours,"

3. BACKGROUND

Two leakage collection sumps are provided inside primary containment. Identified leakage is piped from pump seal leakoffs, reactor vessel head flange seal leakoff, selected valve stem leakoff including recirculation loop and main steam isolation valves, and other equipment drains to the drywell equipment drain sump. The second sump, the drywell floor drain collection sump receives leakage from the drywell coolers, control rod drives, other valve stems and flanges, floor drains, and closed cooling water system drains. Drainage into the drywell floor drain sump is generally considered Unidentified Leakage. Both sumps are equipped with level and flow monitoring equipment to alert operators if allowable leak rates are approached.

A drywell sump monitoring system, as currently required in 3.6.C.2, consists of one equipment sump pump and one floor drain sump pump, plus associated instrumentation. Flow integrators, one for the equipment drain sump and another for the floor drain sump, comprise the basic instrument system, and are used to record the flow of liquid from the drywell sumps. A manual system whereby the time interval between sump pump starts is utilized to provide a back-up to the flow integrators if the instrumentation is found to be inoperable. This time interval determines the leakage flow because the capacity of the pump is known.

The design capacity of each of the floor sump pumps is at least 50 gpm. Removal of 25 gpm from either of these sumps can be accomplished with considerable margin.

In addition to the sump monitoring of coolant leakage, airborne radioactivity levels of the drywell atmosphere is monitored by the Reactor Pressure Boundary Leak Detection System. This system consists of two panels capable of monitoring the primary containment atmosphere for particulate and gaseous radioactivity as a result of coolant leaks. Additional diverse leakage detection means are employed via the primary containment atmospheric temperature, humidity, and pressure instrumentation. Drywell cooler flow alarm switches annunciate in the main control room. These switches are set at 2 gal/min or less to detect possible rupture of the cooling water lines and also to detect high condensate flows. Annunciation from individual drywell coolers indicate unusual conditions and identify suspected leak areas. Operating experience with these flow alarm switches has demonstrated their utility as part of the overall primary boundary leakage monitoring capability.

The total leakage rate consists of all leakage, which flows to the drywell equipment drain sump (identified leakage) and floor drain sump (unidentified leakage).

4. TECHNICAL ANALYSIS

Section 182a of the Atomic Energy Act of 1954, as amended (the Act) requires applicants for nuclear power plant operating licenses to include the TS as part of the license. The Commission's regulatory requirements related to the content for the TS are set forth in 10 CFR 50.36. That regulation requires that the TS include items in eight specific categories. The categories are (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; (5) administrative controls; (6) decommissioning; (7) initial notification; and (8) written reports. However, the regulation does not specify the particular requirements to be included in a plant's TS.

The Commission amended 10 CFR 50.36 (60 FR 36593, July 19, 1995), and codified four criteria to be used in determining whether a particular matter is required to be included in a limiting condition for operation (LCO) as follows: (1) Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary; (2) a process variable, design feature, or operating restriction that is an initial condition of a design-basis accident or transient analysis that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier; (3) a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design-basis accident or transient that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier; or (4) a structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety. LCOs and related requirements that fall within or satisfy any of the criteria in the regulation must be retained in the TS, while those requirements that do not fall within or satisfy these criteria may be relocated to licensee-controlled documents. The PNPS FSAR and TS Bases are such licensee-controlled documents.

Consistent with these criteria, Entergy proposes to relocate the drywell equipment drain sump monitoring subsystem from the PNPS TS to the FSAR. The four criteria of 10 CFR 50.36 are addressed in Section 4.2 for this relocation.

4.1 The revision to TS 4.6.C.1 eliminating "by monitoring the coolant leakage detection systems required to be operable by 3.6.C.2" is an administrative change only. Surveillance requirements do not typically delineate the specific instrumentation used to verify the required limit is being met. Removing such detail does not change the requirement or impact the procedures used to perform the surveillance. Since the drywell equipment drain sump monitoring system is being relocated (refer to discussion below), this reference to TS 3.6.C.2 would be incomplete. As such, deleting the unnecessary phrase provides enhanced clarity, avoids potential misinterpretation, and results in presentation detail consistent with BWR/4 Standard Technical Specifications, NUREG-1433, Revision 3.

4.2 TS 3.6.C.2.a.1 and 4.6.C.2.a are revised by adding the limitation "floor drain" such that the requirement reads "drywell floor drain sump monitoring system." The Bases are also clarified consistent with this change, which results in relocating TS requirements for the drywell equipment drain sump portion of the monitoring system from the TS.

(1) The equipment drain sump monitoring instrumentation is not "instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary." This function is primarily met by the drywell floor drain sump monitoring equipment as well as the containment atmospheric monitoring instrumentation. This is consistent with previous NRC reviews and approvals (Reference 3).

(2) The equipment drain sump monitoring instrumentation are not used as an initial condition of a design-basis accident or transient analysis that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier.

(3) The equipment drain sump monitoring instrumentation are not used as part of the primary success path which functions or actuates to mitigate a design-basis accident or transient.

(4) Operating experiences or probabilistic safety assessments have not shown the equipment drain sump monitoring instrumentation to be significant to public health and safety.

The equipment drain sump monitoring instrumentation functional test and calibration requirements specified in TS 4.6.C.2.a will be relocated to the FSAR. Therefore, any changes to these requirements will be controlled by the provisions of 10 CFR 50.59. Additional editorial changes from "one" and "each" to "the" drywell floor drain sump monitoring system provides enhanced clarity without introducing any technical change.

4.3 Current TS 3.6.C.2.b.1 does not allow any repair time on discovery of the required drywell sump monitoring system being inoperable; requiring the plant to be in Hot Shutdown within 12 hours and Cold Shutdown within the following 24 hours. PNPS TS 4.6.C.1 continues to require demonstration that drywell leakage is within limits once every 8 hours. With an atmospheric radioactivity monitoring system still operable the ability to monitor reactor coolant system condition still exists. A 30-day restoration time provides added flexibility without a reduction in safety, which may allow for avoiding unnecessary plant shutdown transients. Furthermore, this action is consistent with that provided in the BWR/4 Standard Technical Specifications, NUREG-1433, Revision 3.

4.4 Current TS 3.6.C.2.b.2 allows a 31-day repair time on discovery that the required gaseous or particulate radioactivity monitoring channel is inoperable provided drywell atmosphere grab samples are analyzed every 24 hours. This repair time and grab sample frequency is made more restrictive by requiring restoration within 30 days provided grab samples are obtained and analyzed every 12 hours. This more restrictive change is solely to provide action time and grab sample frequency consistent with that provided in the BWR/4 Standard Technical Specifications, NUREG-1433, Revision 3. This change for consistency will not impose an undue burden on the operating staff or result in a significant increased likelihood of an unnecessary plant shutdown transient.

Additionally in TS 3.6.C.2.b.2, editorial changes are made for greater consistency with the BWR/4 Standard Technical Specifications, NUREG-1433, Revision 3. Replacing "provided grab samples are obtained and analyzed" with "provided drywell atmosphere grab samples are analyzed" and rewording "..., or be in Hot Shutdown..." to read "...; otherwise, be in Hot Shutdown..." does not introduce any technical changes. Additional clarification from adding "drywell atmosphere," and eliminating the intuitively obvious "obtained and" in reference to the grab samples will have no adverse impact on public health and safety.

The revision to TS 3.6.C.2.b.2, which rewords "..., or be in Hot Shutdown..." to read "...; otherwise, be in Hot Shutdown...", is editorial to facilitate the changes discussed above. This change involves no technical or administrative impact.

4.5 Each of the required actions throughout TS 3.6.C (i.e., 1.b, 1.c, 2.b.1, and 2.b.2), when imposing a requirement to proceed to Cold Shutdown, include an intermediate shutdown requirement "...be in Hot Shutdown within the next 12 hours." For consistency with these shutdown requirements associated with reactor coolant leakage and leakage detection systems, TS 3.6.C.2.c is made more restrictive by also including this intermediate shutdown step, such that TS 3.6.C.2.c reads as follows:

> "With no required leakage detection system Operable, be in Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours."

This change for internal consistency also results in consistency with actions provided in the BWR/4 Standard Technical Specifications, NUREG-1433, Revision 3, for Specification 3.4.6 Action E.

4.6 Current TS Surveillance Requirement 4.6.C.2.b.1 requires an instrument check at a frequency of at least once per day. This frequency is made more restrictive by requiring the instrument check be performed at least once every 12 hours. This more restrictive change is solely to require an instrument check frequency consistent with that provided in the BWR/4 Standard Technical Specifications, NUREG-1433, Revision 3. This change for consistency will not impose an undue burden on the operating staff or result in a significant increased likelihood of an unnecessary plant shutdown transient.

In conclusion, the above relocated requirement for the drywell equipment drain sump monitoring system is not required to be in the TS under 10 CFR 50.36 or Section 182a of the Atomic Energy Act, and is not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. In addition, sufficient regulatory controls over the relocated requirements exist (e.g., 10 CFR 50.59, 10 CFR 50.71(e)) to assure continued protection of public health and safety. The proposed increased restoration times do not impose a significant impact to public health and safety since the drywell leakage rate limits are not revised and actual leakage will continue to be verified to be within limits at the specified frequency. The additional operational flexibility may reduce unnecessary plant shutdown transients providing an increased safety benefit. The change in grab sample frequency and instrument check frequency is a more restrictive change made for consistency with BWR/4 Standard Technical Specifications, NUREG-1433, Revision 3.

5. REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

Entergy Nuclear Operations, Inc. (Entergy) is proposing to modify the Pilgrim Technical Specifications (TS) to relocate requirements for drywell equipment drain sump monitoring system from the TS to the Final Safety Analysis Report (FSAR) and TS Bases. These requirements do not meet the criteria for inclusion in the TS as presented in 10 CFR 50.36(c)(2)(ii). An additional change will provide allowed repair times for discovered inoperabilities in the leakage detection systems required by TS 3.6.C.2.

Entergy 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. The proposed relocation is administrative in nature and does not involve the modification of any plant equipment or affect basic plant operation. The associated instrumentation and surveillances are not assumed to be an initiator of any analyzed event, nor are these functions assumed in the mitigation of consequences of accidents. Additionally, the associated required actions for inoperable components do not impact the initiation or mitigation of any accident.

   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. As such, no new or different types of equipment will be installed, and the basic operation of installed equipment is unchanged. The methods governing plant operation and testing remain consistent with current safety analysis assumptions. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   Response: No. The proposed change to relocate current TS requirements to the FSAR, consistent with regulatory guidance and previously approved changes for other stations, are administrative in nature. These changes do not negate any existing requirement, and do not adversely affect existing plant safety margins or the reliability of the equipment assumed to operate in the safety analysis. As such, there are no changes being made to safety analysis assumptions, safety limits or safety system settings that would adversely affect plant safety as a result of the proposed change. Margins of safety are unaffected by requirements that are retained, but relocated from the Technical Specifications to the FSAR. Additionally, the changes being made to allow additional repair time for inoperable instrumentation will not affect the required leakage limits, which will continue to be monitored at the same required frequency. These compensatory measures, operational limitations, and administrative functions that will be modified are not credited in any design-basis event and do not reflect a margin of safety. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Pilgrim concludes that the proposed amendment presents 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.

5.2 <u>Environmental Consideration</u>

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, 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 needs to be prepared in connection with the proposed amendment.

6. PRECEDENTS

The NRC has approved similar changes (e.g., relocation of drywell equipment drain sump instrumentation which does not meet the criteria of 10 CFR 50.36(c)(2)(ii), and addition of restoration times to be consistent with NUREG-1433) in a number of amendments. An example includes Monticello Nuclear Generating Plant, Amendment No. 137 dated August 21, 2003.

7. REFERENCES

1. 10 CFR 50.36, "Technical specifications"

2. NUREG-1433, Rev. 3, "Standard Technical Specifications, General Electric Plants, BWR/4"

3. Monticello Nuclear Generating Plant, Amendment No. 137, dated August 21, 2003

ATTACHMENT 1

PROPOSED TECHNICAL SPECIFICATION AND BASES

CHANGES (MARK-UP)

LIMITING CONDITIONS FOR OPERATION

3.6 PRIMARY SYSTEM BOUNDARY (Cont)

C. Coolant Leakage

Any time irradiated fuel is in the reactor vessel and coolant temperature is above 212°F, the following limits shall be observed:

1. Operational Leakage

a. Reactor coolant system leakage shall be limited to:

1. No Pressure Boundary Leakage

2. ≤5 gpm Unidentified Leakage

3. ≤25 gpm Total Leakage averaged over any 24 hour period.

4. ≤2 gpm increase in Unidentified Leakage within any 24 hour period when in RUN mode.

b. With any reactor coolant system leakage greater than the limits of 2. and/or 3., above, reduce the leakage to within acceptable limits within 4 hours or be in at least Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours.

c. With any reactor coolant system leakage greater than the limits of 4. above, identify the source of leakage within 4 hours or be in at least Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6 PRIMARY SYSTEM BOUNDARY (Cont)

C. Coolant Leakage

Any time irradiated fuel is in the reactor vessel and coolant temperature is above 212°F, the following surveillances shall be performed:

1. Operational Leakage

Demonstrate drywell leakage is within the limits specified in 3.6.C.1 ~~by monitoring the coolant leakage detection systems required to be operable by 3.6.C.2~~ at least once every 8 hours.

LIMITING CONDITIONS FOR OPERATION

3.6 PRIMARY SYSTEM BOUNDARY (Cont)

C. Coolant Leakage (Cont)

d. When any Pressure Boundary Leakage is detected be in at least Hot Shutdown within the next 12 hours and be in Cold Shutdown within the next 24 hours.

2. Leakage Detection Systems

a. The following reactor coolant system leakage detection systems shall be Operable:

1. ~~One~~ The drywell floor drain sump monitoring system, and either

2. One channel of a drywell atmospheric particulate radioactivity monitoring system, or

3. One channel of a drywell atmospheric gaseous radioactivity monitoring system.

INSERT 1

b. 1. ~~At least one drywell sump monitoring system shall be Operable;~~ otherwise, be in Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours.

INSERT 2

2. ~~At least one gaseous or particulate radioactivity monitoring channel must be Operable;~~ ~~otherwise,~~ reactor operation may continue for up to ~~31~~ 30 days provided drywell atmosphere grab samples are ~~obtained and~~ analyzed every ~~24~~ 12 hours, otherwise, ~~or~~ be in Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6 PRIMARY SYSTEM BOUNDARY (Cont)

C. Coolant Leakage (Cont)

2. Leakage Detection Systems

The following reactor coolant leakage detection systems shall be demonstrated Operable:

a. For the ~~each required~~ drywell floor drain sump monitoring system perform:

1. An instrument functional test at least once per 31 days, and

2. An instrument channel calibration at least once per operating cycle.

b. For each required drywell atmospheric radioactivity monitoring system perform:

1. An instrument check at least once ~~per day,~~ every 12 hours

2. An instrument functional test at least once per 31 days, and

3. An instrument channel calibration at least once per operating cycle.

INSERT 1 [page 3/4.6-5]

With the drywell floor drain monitoring system required by 3.6.C.2.a.1 inoperable, restore it to Operable status within 30 days, ...

INSERT 2 [page 3/4.6-5]

With both the gaseous and particulate radioactivity monitoring channels required by 3.6.C.2.a.2 and 3.6.C.2.a.3 inoperable,...

LIMITING CONDITIONS FOR OPERATION

3.6 PRIMARY SYSTEM BOUNDARY (Cont)

c. With no required leakage detection systems Operable, ~~be~~ in Cold Shutdown within 24 hours. the following

INSERT 3

D. Safety and Relief Valves

1. During reactor power operating conditions and prior to reactor startup from a Cold Condition, or whenever reactor coolant pressure is greater than 104 psig and temperature greater than 340°F, both safety valves and the safety modes of all relief valves shall be operable. The nominal setpoint for the relief/safety valves shall be selected between 1095 and 1115 psig. All relief/safety valves shall be set at this nominal setpoint ± 11 psi. The safety valves shall be set at 1240 psig ± 13 psi.

2. If Specification 3.6.D.1 is not met, an orderly shutdown shall be initiated and the reactor coolant pressure shall be below 104 psig within 24 hours. Note: Technical Specifications 3.6.D.2 - 3.6.D.5 apply only when two Stage Target Rock SRVs are installed.

3. If the temperature of any safety relief discharge pipe exceeds 212°F during normal reactor power operation for a period of greater than 24 hours, an engineering evaluation shall be performed justifying continued operation for the corresponding temperature increases.

SURVEILLANCE REQUIREMENTS

4.6 PRIMARY SYSTEM BOUNDARY (Cont)

D. Safety and Relief Valves

1. Testing of safety and relief/safety valves shall be in accordance with 3.13.

2. At least one of the relief/safety valves shall be disassembled and inspected each refueling outage.

3. Whenever the safety relief valves are required to be operable, the discharge pipe temperature of each safety relief valve shall be logged daily.

4. Instrumentation shall be calibrated and checked as indicated in Table 4.2.F.

INSERT 3 [page 3/4.6-6]

...in Hot Shutdown within the next 12 hours and...

BASES:

3/4.6 PRIMARY SYSTEM BOUNDARY (Cont)

C. Coolant Leakage

Allowable leakage rates of coolant from the reactor coolant system have been based on the predicted and experimentally observed behavior of cracks in pipes and on the ability to makeup coolant system leakage in the event of loss of offsite a-c power. The normally expected background leakage due to equipment design and the detection capability for determining coolant system leakage were also considered in establishing the limits. The behavior of cracks in piping systems has been experimentally and analytically investigated as part of the USAEC sponsored Reactor Primary Coolant System Rupture Study (the Pipe Rupture Study). Work utilizing the data obtained in this study indicates that leakage from a crack can be detected before the crack grows to a dangerous or critical size by mechanically or thermally induced cyclic loading, or stress corrosion cracking or some other mechanism characterized by gradual crack growth. This evidence suggests that for leakage somewhat greater than the limit specified for unidentified leakage, the probability is small that imperfections or cracks associated with such leakage would grow rapidly. However, the establishment of allowable unidentified leakage greater than that given in 3.6.C on the basis of the data presently available would be premature because of uncertainties associated with the data. For leakage of the order of 5 gpm, as specified in 3.6.C, the experimental and analytical data suggest a reasonable margin of safety that such leakage magnitude would not result from a crack approaching the critical size for rapid propagation. Leakage less than the magnitude specified can be detected reasonably in a matter of a few hours utilizing the available leakage detection schemes, and if the origin cannot be determined in a reasonably short time the plant should be shut down to allow further investigation and corrective action.

Verification of the integrity of the reactor coolant system (3.6.C.1.a.1: No Pressure Boundary Leakage) is provided during RPV Class I system hydrostatic and leak tests conducted to meet section 3/4.6.G: Structural Integrity (ASME Code, Section XI, IWA 5000, and IWB 5000.)

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Two leakage collection sumps are provided inside primary containment. Identified leakage is piped from pump seal leakoffs, reactor vessel head flange seal leakoff, selected valve stem leakoff including recirculation loop and main steam isolation valves, and other equipment drains to the drywell equipment drain sump. The second sump, the drywell floor drain ~~collection~~ sump, receives leakage from the drywell coolers, control rod drives, other valve stems and flanges, floor drains, and closed cooling water system drains. Drainage into the drywell floor drain sump is generally considered unidentified leakage. Both sumps are equipped with level and flow monitoring equipment to alert operators if allowable leak rates are approached.

The ~~A~~ drywell floor drain sump monitoring system, as required in 3.6.C.2, consists of ~~one equipment sump pump and~~ one floor drain sump pump, plus associated instrumentation. ~~Flow integrators, one for the equipment drain sump and~~

The basic instrument system for the drywell floor drain sump is comprised of a flow integrator that is used to record the flow of liquid from the sump. The drywell equipment drain sump is similarly equipped.

C. Coolant Leakage (Cont)

~~another for the floor sump, comprise the basic instrument system, and are used to record the flow of liquid from the drywell sumps.~~ A manual system whereby the time interval between sump pump starts is utilized to provide a back-up to the flow integrators if the instrumentation is found to be inoperable. This time interval determines the leakage flow using the tested capacity for ~~each~~ the pump.

~~The capacity of each of the two drywell floor sump pumps and each of the two drywell equipment sump pumps is greater than 50 gpm. Removal of 25 gpm from either of these sumps can be accomplished with considerable margin.~~

In addition to the sump monitoring of coolant leakage, airborne radioactivity levels of the drywell atmosphere is monitored by the Reactor Pressure Boundary Leak Detection System. This system consists of two panels capable of monitoring the primary containment atmosphere for particulate and gaseous radioactivity as a result of coolant leaks.

Move to

The 2 gpm limit for Unidentified coolant leakage rate increase within any 24 hour period is a limit specified by the NRC in Generic Letter 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping." This limit applies only during the RUN mode to accommodate the expected coolant leakage increase during pressurization.

The total leakage rate consists of all leakage, which flows to the drywell equipment drain sump (Identified leakage) and floor drain sump (Unidentified leakage).

D. Safety and Relief Valves

The valve sizing analysis considered four, 10% capacity relief/safety valves and two 8% capacity safety valves. These sized and set pressures are established in accordance with the following three requirements of Section II of the ASME Code:

1. The lowest safety valve must be set to open at or below vessel design pressure and the highest safety valve be set at or below 105% of design pressure.

2. The valves must limit the reactor pressure to no more than 110% of design pressure.

3. Protection systems directly related to the valve sizing transient must not be credited with action (i.e., an indirect scram must be assumed).

ATTACHMENT 2

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.

REGULATORY COMMITMENT	DUE DATE
Relocate specified requirements to the FSAR and revise TS Bases.	Within 60 days of license amendment approval.