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Pilgrim Station
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April 14, 2004

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. 50-283
License Number. DPR-35

Request for Amendment to the Technical Specifications
Reactor Vessel Hydrostatic and Leak Testing Requirements

REFERENCE: NUREG 1433, Standard Technical Specifications for General Electric
Plants, BWR/4, Revision 2

LETTER NUMBER: 2.04.016

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (Entergy) proposes to amend the Pilgrim Station Facility Operating License, DPR-35. The purpose of this License Amendment Request is to add a new LCO 3.0.7 to section 3.0, Limiting Condition For Operation (LCO) Applicability, a new section 3.14, Special Operations, and a new LCO 3.14.A to the Technical Specifications to specifically permit inservice hydrostatic testing and system leakage pressure testing at reactor coolant system (RCS) temperatures greater than 212°F with the reactor shutdown. The proposed changes are consistent with NUREG-1433, Rev.2. Pilgrim 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 March 16, 2005 to support implementation during the next scheduled refueling outage-15 in April 2005.

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 14th day of April 2004.

Sincerely,

Michael A. Balduzzi

Enclosure: Evaluation of Proposed Changes, (6 pages)
Attachments: 1. Retyped Technical Specification and Bases Pages, (11 pages)
2. Marked-Up Technical Specification and Bases Pages, (12 pages)

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Pilgrim Nuclear Power Station

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ENCLOSURE

Evaluation of Proposed Changes

Subject: Inservice Leak and Hydrostatic Testing Operation

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1. Description

This letter is a request to amend Operating License DPR-35 for Pilgrim Nuclear Power Station (PNPS). This proposed license amendment adds a new LCO 3.0.7 to section 3.0, "Limiting Condition For Operation (LCO) Applicability", a new section 3.14, "Special Operations", and a new LCO 3.14.A "Inservice Leak and Hydrostatic Testing Operation" to the Technical Specifications to specifically permit inservice hydrostatic testing and system leakage pressure testing at reactor coolant system (RCS) temperatures greater than 212°F with the reactor shutdown. The proposed changes are consistent with NUREG 1433, Rev.2 (Reference 1).

Entergy requests approval of the proposed amendment by March 16, 2005 to support Pilgrim's upcoming Refueling Outage-15 scheduled to commence on April 16, 2005.

2. Proposed Changes

The following changes are proposed:

- A. Add a new Limiting Condition for Operation (LCO) 3.0.7 to PNPS Technical Specifications Section 3.0, "Limiting Condition For Operation (LCO) Applicability".

This LCO applies to the proposed Special Operations LCO 3.14.A in Section 3.14 to allow specified Technical Specification requirements to be changed to permit performance of special tests and operations, which otherwise could not be performed if required to comply with the requirements of the technical specifications.

- B. Add new section 3.14, "Special Operations", and LCO 3.14.A, "Inservice Leak and Hydrostatic Testing Operation", to the PNPS Technical Specifications.

The purpose of this Special Operations LCO is to allow certain reactor coolant system (RCS) pressure tests to be performed with the reactor pressure vessel (RPV) at temperatures > 212°F. Proposed LCO 3.14.A will allow the average reactor coolant temperature specified in the definitions for Cold Shutdown and Cold Condition to be treated as "NA" and operation considered not to be in Hot Shutdown or above 212°F with RCS temperature exceeding 212°F. In doing so, the proposed LCO 3.14.A effectively provides an exemption from the requirements for operability that currently go into effect when in Hot Shutdown or when RCS temperature is >212°F, with the exception that the following LCOs must be met:

T.S. Table 3.2 A Reactor low water level instrumentation
LCO 3.7.B.1 Standby Gas Treatment System (SGTS)
LCO 3.7.C.1 Secondary Containment

It will be required to meet these LCOs under proposed LCO 3.14.A to assure an adequate margin of safety for the conditions to which LCO 3.14.A apply. These systems/instrumentation will be required to be operable prior to allowing reactor coolant temperature to exceed 212°F.

- C. Update the Table of Contents to reflect the proposed changes described above.

3. Background

Hydrostatic and leakage tests of the reactor coolant system (RCS) are required by Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. 10 CFR 50 Appendix G states that "pressure tests and leak tests of the reactor vessel that are required by Section XI of the ASME Code must be completed before the core is critical." These reactor vessel hydrostatic and leakage tests are performed with the reactor pressure vessel in an essentially water solid condition using reactor recirculation and control rod drive pump operation to achieve the required test temperatures and pressures.

The minimum allowed temperatures for these tests are conservatively based on the fracture toughness of the reactor vessel, taking into account anticipated neutron fluence. For the current reactor vessel fluence, hydrostatic and leakage tests are required to be performed with minimum reactor coolant system temperatures above 158°F per Pilgrim Technical Specification 3.6.A.2. The Operators require margin to maintain the test temperature between the minimum temperature limit and the maximum test temperature of 212°F, which is administratively enforced at a lower value of 210°F. As the accumulated neutron fluence on the reactor vessel increases, the hydrostatic testing Pressure-Temperature Limits in T.S. 3.6.A.2 will ultimately require that testing be conducted at higher RCS temperatures. In fact, because decay heat and mechanical heat used to heat the reactor coolant do not allow exact control, the Leak test performed prior to startup following the last refueling outage (RFO) in 2003 had to be temporarily aborted, in accordance with the governing test procedure, to cool down the RCS because coolant temperature reached 210°F. This resulted in a loss of about 8 hours of critical path time during the RFO.

4. Technical Analysis

Allowing the reactor to be considered in Cold Shutdown/Cold Condition during hydrostatic testing or leak testing, when the reactor coolant temperature is >212°F, effectively provides an exemption to requirements that apply during Hot Shutdown or whenever RCS temperature is > 212°F. (e.g., proposed LCO 3.14.A will exempt the following requirements that normally apply under these conditions: LCO 3.5.A.1 "Core Spray System", LCO 3.5.A.3 "Low Pressure Coolant Injection (LPCI) System", LCO 3.5.B.1 "Residual Heat Removal (RHR) Suppression Pool Cooling", LCO 3.5.B.2 "RHR Containment Spray" and LCO 3.7.A.2 "Primary Containment Integrity".)

The current operability requirements of LCO 3.5.E.1 "Automatic Depressurization System (ADS)" are unaffected by proposed LCO 3.14.A as LCO 3.5.E.1 is independent of RCS temperature. The ADS is required to be operable whenever there is irradiated fuel in the reactor vessel and reactor pressure exceeds 104 psig and prior to startup from a cold condition. Furthermore, the current operability requirements of LCO 3.6.D.1 "Safety and Relief Valves (S/RVs)", are unaffected by proposed LCO 3.14.A as operability of the S/RVs is not required unless RCS temperature is greater than 340°F. Similarly, the current operability requirements of LCO 3.5.C.1 "High Pressure Coolant Injection (HPCI) System" and LCO 3.6.D.1 "Reactor Core Isolation Cooling (RCIC) System", are unaffected by LCO 3.14.A as operability of these systems is not required unless RCS temperature is greater than 365°F.

The proposed change exempts primary containment integrity from being required during operation under proposed LCO 3.14.A. This will allow frequent, unobstructed access to perform the leakage inspections. Under current technical specifications, Primary Containment is required whenever RCS temperature is greater than 212°F, which restricts access to the reactor vessel head. The restricted access to the reactor vessel head combined with the elevated test temperatures makes performance of the required inspections a personnel safety concern. Since hydrostatic tests and leak tests are performed nearly water solid, at low decay heat values, and near Cold Shutdown/Cold Condition conditions, the stored energy in the reactor core will be very low. Under these conditions, the potential for failed fuel and a subsequent increase in coolant activity above the LCO 3.6.B, "Primary System Boundary – Coolant Chemistry," limits are minimized. Furthermore, the secondary containment, standby gas treatment system (SGTS) and instrumentation that initiate these system functions will be OPERABLE, in accordance with the proposed Special Operations LCO. Without primary containment, the secondary containment and SGTS will be capable of handling any airborne radioactivity or steam leaks that could occur during the performance of hydrostatic or leak testing. The required pressure testing conditions provide adequate assurance that the consequences of a steam leak will be conservatively bounded by the consequences of the postulated main steam line break outside of primary containment described in Reference 2. Therefore, these requirements will conservatively limit radiation releases to the environment.

In the event of a large primary system leak, the reactor pressure vessel would rapidly depressurize due to the near water-solid condition of the RCS. Under these conditions, core cooling will be assured by LCO 3.5.A.5 "Core And Containment Cooling Systems", which requires the operability of two low-pressure injection/spray subsystems during this condition. The capability of these low-pressure injection/spray subsystems would be more than adequate to keep the core flooded under this low decay heat load condition. Small system leaks would be detected by leakage inspections before significant inventory loss occurred.

For the purposes of these tests, the protection provided by normally required Cold Shutdown/Cold Condition applicable LCOs, in addition to the Secondary Containment, SGTS, and associated initiation instrumentation requirements of this Special Operations LCO, will ensure acceptable consequences during normal hydrostatic test conditions and during postulated accident conditions. As described in LCO 3.0.7, compliance with Special Operations LCOs is optional, and therefore, no criteria of 10 CFR 50.36(c)(2)(ii) apply. Special Operations LCOs provide flexibility to perform certain operations by appropriately modifying requirements of other LCOs. A discussion of the criteria satisfied for the other LCOs is provided in their respective Bases.

5. Regulatory Safety Analysis

5.1 No Significant Hazards Consideration

Entergy Nuclear Operations, Inc. (Entergy) is proposing to modify the Pilgrim Station Technical Specifications to add a new LCO 3.0.7 to section 3.0, "Limiting Condition For Operation (LCO) Applicability", a new section 3.14, "Special Operations", and a new LCO 3.14.A "Inservice Hydrostatic and Leak Testing Operation" to the Technical Specifications to specifically permit inservice hydrostatic testing and system leakage pressure testing at reactor coolant system (RCS) temperatures greater than 212°F with the reactor shutdown.

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:

- i) Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change will not result in a significant change in the stored energy in the reactor vessel during the performance of the testing. The probability of an accident is not increased significantly because the proposed change will not alter the method by which hydrostatic pressure and leak testing is performed or significantly change the temperatures and pressures achieved to perform the test. The consequences of previously evaluated accidents are not increased significantly because the required testing conditions provide adequate assurance that the consequences of a steam leak will be conservatively bounded by the consequences of the postulated main steam line break outside of primary containment. Under this proposed change the secondary containment, standby gas treatment system and associated initiation instrumentation are required to be operable during the performance of hydrostatic and leak testing and would be capable of handling any airborne radioactivity or steam leaks that could occur. In addition, the required Low Pressure Injection/Spray subsystems will be more than adequate to ensure that a significant increase in consequences will not occur by ensuring that the potential for failed fuel and a subsequent increase in coolant activity above Technical Specification limits are minimized.

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

- ii) Does the proposed change create the possibility of a new or different kind of accident from any previously evaluated?

Response: No.

As the accumulated neutron fluence on the reactor vessel increases, the hydrostatic testing Pressure-Temperature Limits in T.S. 3.6.A.2 will ultimately require that testing be conducted at Reactor Coolant System temperatures above 212°F. The proposed change will not result in a significant change in the stored energy in the reactor vessel during the performance of the testing nor will it alter the way hydrostatic pressure and leak testing is performed or significantly change the temperatures and pressures achieved to perform the test.

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

- iii) Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed changes and additions result in increased system operability requirements above those that currently exist during the performance of inservice

hydrostatic testing and system leakage pressure testing. The incremental increase in stored energy in the vessel during testing will be conservatively bounded by the consequences of the postulated main steam line break outside of primary containment and analyzed margins of safety are unchanged.

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 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 Environmental Consideration

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 assessment needs to be prepared in connection with the proposed amendment.

6. Coordination With Other Pending TS Changes

There are no other pending TS changes that would be affected by this proposed license amendment.

7. Precedents

This proposed license amendment request is similar those submitted by Duane Arnold Energy Center on February 3, 1998 and approved March 31, 1998 (TAC No. MA0781) and Hatch Unit 2 submitted on January 4, 1988 and approved March 12, 1988 (TAC No. 66947). This proposed license amendment request is not identical to those requests due to differences in the Technical Specifications between the plants and the exact approach each licensee took to amend their Technical Specifications, however, the overall intent of all the requests are believed to be the same with very similar justifications.

8. References

1. NUREG 1433, Standard Technical Specifications for General Electric Plants, BWR/4, Revision 2
2. Pilgrim Nuclear Power Station Updated Final Safety Analysis report, Section 14.5.4 "Main Steam Line Break Accident"

Attachment 1 to 2.04.016

**Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Plant**

Proposed Amendment to the Technical Specifications

Retyped Technical Specifications and Bases Pages (10 pages)

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3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

3.0.1 Not Used

3.0.2 Not Used

3.0.3 Not Used

3.0.4 Not Used

3.0.5 Not Used

3.0.6 Not Used

3.0.7 Special Operations LCOs in Section 3.14 allow specified Technical Specifications requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other Technical Specification requirements remain unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a Mode or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

4.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

4.0.1 Not Used

4.0.2 Not Used

4.0.3 If it is discovered that a Surveillance was not performed within its specified Surveillance Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Surveillance Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

BASES:

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

3.0.1 Not Used

3.0.2 Not Used

3.0.3 Not Used

3.0.4 Not Used

3.0.5 Not Used

3.0.6 Not Used

3.0.7 There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to demonstrate select unit performance characteristics, to perform special maintenance activities, and to perform special evolutions. Special Operations LCOs in Section 3.14 allow specified Technical Specification requirements to be changed to permit performances of these special tests and operations, which otherwise could not be performed if required to comply with those Technical Specification requirements. Unless otherwise specified, all the other Technical Specification requirements remain unchanged. This ensures all appropriate requirements of the Mode or other specified condition, not directly associated with or required to be changed to perform the special test or operation, will remain in effect.

The Applicability of a Special Operations LCO represents a condition not necessarily in compliance with the normal requirements of the Technical Specifications. Compliance with Special Operations LCOs is optional. A special operation may be performed either under the provisions of the appropriate Special Operations LCO or under the other applicable Technical Specification requirements. If it is desired to perform the special operation under the provisions of the Special Operations LCO, the requirements of the Special Operations LCO shall be followed. When a Special Operations LCO requires another LCO to be met, only the requirements of the LCO statement are required to be met regardless of that LCO's Applicability (i.e., should the requirements of this other LCO not be met, the ACTIONS of the Special Operations LCO apply, not the ACTIONS of the other LCO). However, there are instances where the Special Operations LCO ACTIONS may direct the other LCOs' ACTIONS be met.

It is not required to meet the Surveillances of the other LCO, unless specified in the Special Operations LCO. If conditions exist such that the Applicability of any other LCO is met, all the other LCO's requirements (ACTIONS and Surveillance Requirements) are required to be met concurrent with the requirements of the Special Operations LCO.

BASES:

4.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

4.0.1 Not Used

4.0.2 Not Used

4.0.3 TS 4.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Surveillance Frequency. A delay period of up to 24 hours or up to the limit of the specified Surveillance Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with the definition of "Surveillance Frequency" and not at the time that the specified Surveillance Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of the unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Surveillance Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, TS 4.0.3 allows for the full delay period of up to the specified Surveillance Frequency to perform the Surveillance. However, since there is no time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

TS 4.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of reactor MODE changes imposed by required Actions.

Failure to comply with specified Frequencies for surveillance intervals is expected to be an infrequent occurrence. Use of the delay period established by TS 4.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Surveillance Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance

BASES:

4.03 (cont'd) as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any (continued) analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, 'Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants.' This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation should be commensurate with the importance of the component. Missed Surveillance for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the completion times or the required actions for the applicable LCO Actions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the completion times of the required actions for the applicable LCO Actions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the completion time of the Actions, restores compliance with "Surveillance Frequency."

LIMITING CONDITIONS FOR OPERATION

3.14 SPECIAL OPERATIONS

A. Inservice Hydrostatic and Leak Testing Operation

Specification

The average reactor coolant temperature specified in the definition of "Cold Shutdown" and "Cold Condition" may be considered "NA", and operation considered not to be in "Hot Shutdown" or $>212^{\circ}$ F to allow performance of an inservice hydrostatic test or leak test provided that the following requirements are met:

Table 3.2A	Reactor Low Water Instrumentation
LCO 3.7.B.1	Standby Gas Treatment System (SGTS)
LCO 3.7.C.1	Secondary Containment

Applicability

During performance of inservice hydrostatic testing and system leakage pressure tests of the reactor coolant system with average coolant temperature $>212^{\circ}$ F.

Actions

NOTE: Separate Condition entry is allowed for each requirement of the LCO.

- A. One or more of the above requirements not met:
- NOTE:** Required Actions to be in Cold Shutdown/Cold Condition include reducing average reactor coolant temperature to $\leq 212^{\circ}$ F.
Immediately enter the applicable Condition of the affected LCO.

SURVEILLANCE REQUIREMENTS

4.14 SPECIAL OPERATIONS

A. Inservice Hydrostatic and Leak Testing Operation

Perform the applicable surveillance requirements for the required LCOs at the frequency specified by the applicable surveillance requirements.

LIMITING CONDITIONS FOR OPERATION
(continued)

SURVEILLANCE REQUIREMENTS

OR

- 2.1 Immediately suspend activities that could increase the average reactor coolant temperature or pressure.

AND

- 2.2 Reduce average reactor coolant temperature to $\leq 212^{\circ}$ F within 24 hours

BASES:

3/4.14.A Inservice Hydrostatic and Leak Testing Operation

Background

The purpose of this Special Operations LCO is to allow certain reactor coolant pressure tests to be performed in Cold Shutdown/Cold Condition when the metallurgical characteristics of the reactor pressure vessel (RPV) require the pressure testing at reactor coolant temperatures close to, or greater than 212°F (normally corresponding to Hot Shutdown).

Inservice hydrostatic testing and system leakage pressure tests required by Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code are performed prior to the reactor going critical after a refueling outage. Recirculation pump operation and a water solid RPV (except for an air bubble for pressure control) are used to achieve the necessary temperatures and pressures required for these tests. The minimum temperatures (at the required pressures) allowed for these tests are determined from the RPV pressure and temperature (P/T) limits required by LCO 3.6.A.2, "Primary System Boundary - Thermal and Pressurization Limitations." These limits are conservatively based on the fracture toughness of the reactor vessel, taking into account anticipated vessel neutron fluence.

With increased reactor vessel fluence over time, the minimum allowable vessel temperature increases at a given pressure. Periodic updates to the RPV P/T limit curves are performed as necessary, based upon the results of analyses of irradiated surveillance specimens removed from the vessel. In the future it is expected that hydrostatic and leak testing will eventually be required with minimum reactor coolant temperatures exceeding 212°F. Even with minimum temperature requirements below 212°F, the margin between the minimum test temperature and 212°F is not great enough for the operators to perform the test without a challenge to their ability to maintain temperature below 212°F due to lack of exact control over test temperatures.

Applicable Safety Analyses

Allowing the reactor to be considered in Cold Shutdown/Cold Condition during hydrostatic or leak testing, when the reactor coolant temperature is > 212°F, effectively provides an exception to Hot Shutdown requirements, including OPERABILITY of primary containment and the full complement of redundant Emergency Core Cooling Systems. Since the hydrostatic or leak tests are performed nearly water solid, at low decay heat values, and near Cold Shutdown/Cold Condition, the stored energy in the reactor core will be very low. Under these conditions, the potential for failed fuel and a subsequent increase in coolant activity above the LCO 3.6.B.1, "Coolant Chemistry," limits are minimized. In addition, the secondary containment will be OPERABLE, in accordance with this Special Operations LCO, and will be capable of handling any airborne radioactivity or steam leaks that could occur during the performance of hydrostatic or leak testing. The required pressure testing conditions provide adequate assurance that the consequences of a steam leak will be conservatively bounded by the consequences of the postulated main steam line break outside of primary containment described in Reference 2. Therefore, these requirements will conservatively limit radiation releases to the environment.

BASES:

3/4.14.A (continued)

Applicable Safety Analyses (continued)

In the event of a large primary system leak, the reactor vessel would rapidly depressurize, allowing the low-pressure core cooling systems to operate. The capability of the low-pressure coolant injection and core spray subsystems, as required in Cold Shutdown/Cold Condition by LCO 3.5.A.5, "Core Spray and LPCI Systems," are more than adequate to keep the core flooded under this low decay heat load condition. Small system leaks would be detected by leakage inspections before significant inventory loss occurred.

For the purposes of this test, the protection provided by normally required Cold Shutdown/Cold Condition applicable LCOs, in addition to the secondary containment requirements, required by this Special Operations LCO, will ensure acceptable consequences during normal hydrostatic test conditions and during postulated accident conditions.

As described in LCO 3.0.7, compliance with Special Operations LCOs is optional, and therefore, no criteria of 10 CFR 50.36(c)(2)(ii) apply. Special Operations LCOs provide flexibility to perform certain operations by appropriately modifying requirements of other LCOs.

LCO

As described in LCO 3.0.7, compliance with this Special Operations LCO is optional. Operation at reactor coolant temperatures > 212°F can be in accordance with the other Technical Specifications without meeting this Special Operations LCO or its ACTIONS. This option may be required due to P/T limits, however, which require testing at temperatures > 212°F, and performance of inservice leak and hydrostatic testing would also necessitate the inoperability of some subsystems normally required to be OPERABLE when the reactor coolant temperatures is > 212°F.

If it is desired to perform these tests while complying with this Special Operations LCO, then the Cold Shutdown/Cold Condition applicable LCOs and the additional LCOs specified by LCO 3.14.A must be met. The additional requirements for secondary containment, Standby Gas Treatment system, and reactor low water level instrumentation that initiates Reactor Building Isolation and Control system will provide sufficient protection for operations at reactor coolant temperatures >212°F for the purpose of performing either an inservice leak or hydrostatic test.

This LCO allows primary containment to be open for frequent unobstructed access to perform inspections, and for outage activities on various systems to continue consistent with the Cold Shutdown/Cold Condition applicable requirements that are in effect prior to and after this operation.

BASES:

3/4.14.A (continued)

Applicability

The Cold Shutdown/Cold Condition definition may only be modified for the performance of inservice leak or hydrostatic tests so that special operation LCO 3.14.A can be considered as in Cold Shutdown/Cold Condition, even though the reactor coolant temperature is > 212°F. The additional operability requirements for secondary containment, Standby Gas Treatment system, and reactor low water level instrumentation that initiates Reactor Building Isolation and Control system when reactor coolant temperature is above 212°F provides conservatism in the response of the unit to any event that may occur. Operations in all other MODES are unaffected by this LCO.

Actions

A Note has been provided to modify the ACTIONS related to inservice leak and hydrostatic testing operation. A Note has been provided that allows separate Condition entry for each requirement of the LCO.

A.1

If an LCO specified in LCO 3.14.1 is not met, the ACTIONS applicable to the stated requirements are entered immediately and complied with. Required Action A.1 has been modified by a Note that clarifies the intent of another LCOs Required Action to be in Cold Shutdown/Cold Condition includes reducing the average reactor coolant temperature to < 212°F.

A.2.1 and A.2.2

Required Action A.2.1 and Required Action A.2.2 are alternate Required Actions that can be taken instead of Required Action A.1 to restore compliance with the normal Technical Specification requirements, and thereby exit this Special Operation LCO's Applicability. Activities that could further increase reactor coolant temperature or pressure are suspended immediately, in accordance with Required Action A.2.1, and the reactor coolant temperature is reduced to establish normal Cold Shutdown/Cold Condition requirements. The allowed Completion Time of 24 hours for Required Action A.2.2 is based on engineering judgment and provides sufficient time to reduce the average reactor coolant temperature from the highest expected value to < 212°F with normal cooldown procedures.

Surveillance Requirements (SR)

SR 4.14.A

The LCOs made applicable are required to have their Surveillances met to establish that this LCO is being met. A discussion of the applicable Surveillance Requirements is provided in their respective Bases.

- References:
1. NUREG 1433, Standard Technical Specifications for General Electric Plants, BWR/4, Revision 2
 2. Pilgrim Nuclear Power Station Updated Final Safety Analysis Report, Section 14.5.4 "Main Steam Line Break Accident"

Attachment 2 to 2.04.016

**Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Plant**

Proposed Amendment to the Technical Specifications

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3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

~~Not Used~~ ⁶

INSERT A

4.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

4.0.1 Not Used

4.0.2 Not Used

4.0.3 If it is discovered that a Surveillance was not performed within its specified Surveillance Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Surveillance Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.



3.0.1 Not Used

3.0.2 Not Used

3.0.3 Not Used

3.0.4 Not Used

3.0.5 Not Used

3.0.6 Not Used

3.0.7 Special Operations LCOs in Section 3.14 allow specified Technical Specifications requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other Technical Specification requirements remain unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a Mode or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

BASES:

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

~~Not Used~~ ⁶ INSERT 

4.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

4.0.1 Not Used

4.0.2 Not Used

4.0.3 TS 4.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Surveillance Frequency. A delay period of up to 24 hours or up to the limit of the specified Surveillance Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with the definition of "Surveillance Frequency" and not at the time that the specified Surveillance Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of the unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Surveillance Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, TS 4.0.3 allows for the full delay period of up to the specified Surveillance Frequency to perform the Surveillance. However, since there is no time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

TS 4.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of reactor MODE changes imposed by required Actions.

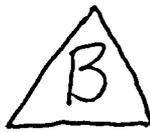
Failure to comply with specified Frequencies for surveillance intervals is expected to be an infrequent occurrence. Use of the delay period established by TS 4.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to

BASES:

24 hours or the limit of the specified Surveillance Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any (continued) analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, 'Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants.' This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation should be commensurate with the importance of the component. Missed Surveillance for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the completion times or the required actions for the applicable LCO Actions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the completion times of the required actions for the applicable LCO Actions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the completion time of the Actions, restores compliance with "Surveillance Frequency."



3.0.1 Not Used

3.0.2 Not Used

3.0.3 Not Used

3.0.4 Not Used

3.0.5 Not Used

3.0.6 Not Used

3.0.7 There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to demonstrate select unit performance characteristics, to perform special maintenance activities, and to perform special evolutions. Special Operations LCOs in Section 3.14 allow specified Technical Specification requirements to be changed to permit performances of these special tests and operations, which otherwise could not be performed if required to comply with those Technical Specification requirements. Unless otherwise specified, all the other Technical Specification requirements remain unchanged. This ensures all appropriate requirements of the Mode or other specified condition, not directly associated with or required to be changed to perform the special test or operation, will remain in effect.

The Applicability of a Special Operations LCO represents a condition not necessarily in compliance with the normal requirements of the Technical Specifications. Compliance with Special Operations LCOs is optional. A special operation may be performed either under the provisions of the appropriate Special Operations LCO or under the other applicable Technical Specification requirements. If it is desired to perform the special operation under the provisions of the Special Operations LCO, the requirements of the Special Operations LCO shall be followed. When a Special Operations LCO requires another LCO to be met, only the requirements of the LCO statement are required to be met regardless of that LCO's Applicability (i.e., should the requirements of this other LCO not be met, the ACTIONS of the Special Operations LCO apply, not the ACTIONS of the other LCO). However, there are instances where the Special Operations LCO ACTIONS may direct the other LCOs' ACTIONS be met.

It is not required to meet the Surveillances of the other LCO, unless specified in the Special Operations LCO. If conditions exist such that the Applicability of any other LCO is met, all the other LCO's requirements (ACTIONS and Surveillance Requirements) are required to be met concurrent with the requirements of the Special Operations LCO.

LIMITING CONDITIONS FOR OPERATION

3.14 SPECIAL OPERATIONS

A. Inservice Hydrostatic and Leak Testing Operation

Specification

The average reactor coolant temperature specified in the definition of "Cold Shutdown" and "Cold Condition" may be considered "NA", and operation considered not to be in "Hot Shutdown" or $>212^{\circ}$ F to allow performance of an inservice hydrostatic test or leak test provided that the following requirements are met:

Table 3.2A	Reactor Low Water Instrumentation
LCO 3.7.B.1	Standby Gas Treatment System (SGTS)
LCO 3.7.C.1	Secondary Containment

Applicability

During performance of inservice hydrostatic testing and system leakage pressure tests of the reactor coolant system with average coolant temperature $>212^{\circ}$ F.

Actions

NOTE: Separate Condition entry is allowed for each requirement of the LCO.

- A. One or more of the above requirements not met:
1. **NOTE:** Required Actions to be in Cold Shutdown/Cold Condition include reducing average reactor coolant temperature to $\leq 212^{\circ}$ F.
Immediately enter the applicable Condition of the affected LCO.

SURVEILLANCE REQUIREMENTS

4.14 SPECIAL OPERATIONS

A. Inservice Hydrostatic and Leak Testing Operation

Perform the applicable surveillance requirements for the required LCOs at the frequency specified by the applicable surveillance requirements.

LIMITING CONDITIONS FOR OPERATION

(continued)

SURVEILLANCE REQUIREMENTS

OR

- 2.1 Immediately suspend activities that could increase the average reactor coolant temperature or pressure.

AND

- 2.2 Reduce average reactor coolant temperature to $\leq 212^{\circ}$ F within 24 hours

BASES:

3/4.14.A Inservice Hydrostatic and Leak Testing Operation

Background

The purpose of this Special Operations LCO is to allow certain reactor coolant pressure tests to be performed in Cold Shutdown/Cold Condition when the metallurgical characteristics of the reactor pressure vessel (RPV) require the pressure testing at reactor coolant temperatures close to, or greater than 212°F (normally corresponding to Hot Shutdown).

Inservice hydrostatic testing and system leakage pressure tests required by Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code are performed prior to the reactor going critical after a refueling outage. Recirculation pump operation and a water solid RPV (except for an air bubble for pressure control) are used to achieve the necessary temperatures and pressures required for these tests. The minimum temperatures (at the required pressures) allowed for these tests are determined from the RPV pressure and temperature (P/T) limits required by LCO 3.6.A.2, "Primary System Boundary - Thermal and Pressurization Limitations." These limits are conservatively based on the fracture toughness of the reactor vessel, taking into account anticipated vessel neutron fluence.

With increased reactor vessel fluence over time, the minimum allowable vessel temperature increases at a given pressure. Periodic updates to the RPV P/T limit curves are performed as necessary, based upon the results of analyses of irradiated surveillance specimens removed from the vessel. In the future it is expected that hydrostatic and leak testing will eventually be required with minimum reactor coolant temperatures exceeding 212°F. Even with minimum temperature requirements below 212°F, the margin between the minimum test temperature and 212°F is not great enough for the operators to perform the test without a challenge to their ability to maintain temperature below 212°F due to lack of exact control over test temperatures.

Applicable Safety Analyses

Allowing the reactor to be considered in Cold Shutdown/Cold Condition during hydrostatic or leak testing, when the reactor coolant temperature is > 212°F, effectively provides an exception to Hot Shutdown requirements, including OPERABILITY of primary containment and the full complement of redundant Emergency Core Cooling Systems. Since the hydrostatic or leak tests are performed nearly water solid, at low decay heat values, and near Cold Shutdown/Cold Condition, the stored energy in the reactor core will be very low. Under these conditions, the potential for failed fuel and a subsequent increase in coolant activity above the LCO 3.6.B.1, "Coolant Chemistry," limits are minimized. In addition, the secondary containment will be OPERABLE, in accordance with this Special Operations LCO, and will be capable of handling any airborne radioactivity or steam leaks that could occur during the performance of hydrostatic or leak testing. The required pressure testing conditions provide adequate assurance that the consequences of a steam leak will be conservatively bounded by the consequences of the postulated main steam line break outside of primary containment described in Reference 2. Therefore, these requirements will conservatively limit radiation releases to the environment.

BASES:

3/4.14.A (continued)

Applicable Safety Analyses (continued)

In the event of a large primary system leak, the reactor vessel would rapidly depressurize, allowing the low-pressure core cooling systems to operate. The capability of the low-pressure coolant injection and core spray subsystems, as required in Cold Shutdown/Cold Condition by LCO 3.5.A.5, "Core Spray and LPCI Systems," are more than adequate to keep the core flooded under this low decay heat load condition. Small system leaks would be detected by leakage inspections before significant inventory loss occurred.

For the purposes of this test, the protection provided by normally required Cold Shutdown/Cold Condition applicable LCOs, in addition to the secondary containment requirements, required by this Special Operations LCO, will ensure acceptable consequences during normal hydrostatic test conditions and during postulated accident conditions.

As described in LCO 3.0.7, compliance with Special Operations LCOs is optional, and therefore, no criteria of 10 CFR 50.36(c)(2)(ii) apply. Special Operations LCOs provide flexibility to perform certain operations by appropriately modifying requirements of other LCOs.

LCO

As described in LCO 3.0.7, compliance with this Special Operations LCO is optional. Operation at reactor coolant temperatures > 212°F can be in accordance with the other Technical Specifications without meeting this Special Operations LCO or its ACTIONS. This option may be required due to P/T limits, however, which require testing at temperatures > 212°F, and performance of inservice leak and hydrostatic testing would also necessitate the inoperability of some subsystems normally required to be OPERABLE when the reactor coolant temperatures is > 212°F.

If it is desired to perform these tests while complying with this Special Operations LCO, then the Cold Shutdown/Cold Condition applicable LCOs and the additional LCOs specified by LCO 3.14.A must be met. The additional requirements for secondary containment, Standby Gas Treatment system, and reactor low water level instrumentation that initiates Reactor Building Isolation and Control system will provide sufficient protection for operations at reactor coolant temperatures >212°F for the purpose of performing either an inservice leak or hydrostatic test.

This LCO allows primary containment to be open for frequent unobstructed access to perform inspections, and for outage activities on various systems to continue consistent with the Cold Shutdown/Cold Condition applicable requirements that are in effect prior to and after this operation.

BASES:

3/4.14.A (continued)

Applicability

The Cold Shutdown/Cold Condition definition may only be modified for the performance of inservice leak or hydrostatic tests so that special operation LCO 3.14.A can be considered as in Cold Shutdown/Cold Condition, even though the reactor coolant temperature is > 212°F. The additional operability requirements for secondary containment, Standby Gas Treatment system, and reactor low water level instrumentation that initiates Reactor Building Isolation and Control system when reactor coolant temperature is above 212°F provides conservatism in the response of the unit to any event that may occur. Operations in all other MODES are unaffected by this LCO.

Actions

A Note has been provided to modify the ACTIONS related to inservice leak and hydrostatic testing operation. A Note has been provided that allows separate Condition entry for each requirement of the LCO.

A.1

If an LCO specified in LCO 3.14.1 is not met, the ACTIONS applicable to the stated requirements are entered immediately and complied with. Required Action A.1 has been modified by a Note that clarifies the intent of another LCOs Required Action to be in Cold Shutdown/Cold Condition includes reducing the average reactor coolant temperature to < 212°F.

A.2.1 and A.2.2

Required Action A.2.1 and Required Action A.2.2 are alternate Required Actions that can be taken instead of Required Action A.1 to restore compliance with the normal Technical Specification requirements, and thereby exit this Special Operation LCO's Applicability. Activities that could further increase reactor coolant temperature or pressure are suspended immediately, in accordance with Required Action A.2.1, and the reactor coolant temperature is reduced to establish normal Cold Shutdown/Cold Condition requirements. The allowed Completion Time of 24 hours for Required Action A.2.2 is based on engineering judgment and provides sufficient time to reduce the average reactor coolant temperature from the highest expected value to < 212°F with normal cooldown procedures.

Surveillance Requirements (SR)

SR 4.14.A

The LCOs made applicable are required to have their Surveillances met to establish that this LCO is being met. A discussion of the applicable Surveillance Requirements is provided in their respective Bases.

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