



Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
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Site Vice President

May 2, 2006

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

Revision to the Request for Amendment to the Technical Specifications
(TS) - Deletion of Requirement Related to NRC Approval of Engineering
Evaluation for Elevated Relief Valve Discharge Pipe Temperature
(TAC No. MC 7053)

REFERENCE: 1. Entergy Letter No. 2.05.005, Request for Amendment to the Technical
Specifications (TS) - Deletion of Requirement Related to NRC Approval
of Engineering Evaluation for Elevated Relief Valve Discharge Pipe
Temperature, dated May 24, 2005

LETTER NUMBER: 2.06.009

Dear Sir or Madam:

By this letter, Entergy submits a revision to the proposed license amendment that was submitted to the NRC by Reference 1.

This revision modifies the scope of the proposed change based on subsequent discussions with the NRC staff. The revised change does not delete the requirement to perform Technical Specification required engineering evaluations and corrective actions based on the performance data of the relief valves. Instead, the proposed change deletes the requirement to seek NRC approval of the evaluation.

Entergy will implement this change within 90 days of NRC approval.

There are no commitments contained in this letter.

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 2nd of MAY 2006.

Sincerely,

Michael A. Balduzzi
WGL/dm

206009

A001

- Attachments
1. Evaluation of the Proposed Change (6 pages)
 2. Mark-up of Technical Specification pages (3 pages)

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ATTACHMENT 1

Evaluation of the Proposed Change

Subject: Deletion of Requirement Related to NRC Approval of Engineering Evaluation for Elevated Relief Valve Discharge Pipe Temperature

1. DESCRIPTION
2. PROPOSED CHANGE
3. BACKGROUND
4. TECHNICAL ANALYSIS
5. REGULATORY SAFETY ANALYSIS
 - 5.1 No Significant Hazards Consideration
 - 5.2 Environmental Consideration
6. REFERENCES

Deletion of Requirement Related to NRC Approval of Engineering Evaluation
for Elevated Relief Valve Discharge Pipe Temperature

1. DESCRIPTION

Pursuant to 10 CFR 50.90, Entergy proposes to amend the Technical Specifications (TS) for Pilgrim Nuclear Power Station. This proposed change deletes the TS 3.6.D.4 requirement for NRC approval of an engineering evaluation justifying continued operation when a Relief Valve discharge pipe temperature exceeds the limit specified in TS 3.6.D.3.

2. PROPOSED CHANGE

The current Note in TS 3.6.D.2 is separated from TS 3.6.D.2 and clarified to state TS 3.6.D.3 - 3.6.D.5 apply to the two-stage Target Rock relief valves, as follows:

NOTE

*Technical Specifications 3.6.D.3 - 3.6.D.5 apply only
to the two-stage Target Rock relief valves.*

TS 3.6.D.4 is modified deleting the following requirement:

*“Power operation shall not continue beyond 90 days from the
initial discovery of discharge pipe temperature in excess
of 212° F for more than 24 hours without prior NRC approval
of the engineering evaluation delineated in 3.6.D.3.”*

Attachment 2 provides marked-up copies of the impacted TS pages.

The second sentence in the last paragraph on TS Bases page B3/4.6-8 is deleted. A marked-up Bases page is provided for information only.

3. BACKGROUND

Pilgrim has four installed two-stage Target Rock relief valves (RVs) on the main steam lines inside the primary containment, as listed below:

RV-203-3A	on Main Steam Line A
RV-203-3B	on Main Steam Line D
RV-203-3C	on Main Steam Line D
RV-203-3D	on Main Steam Line B

The RVs are provided to relieve primary steam to the suppression pool by self-actuation as part of reactor vessel overpressure protection design. Each RV has a setpoint of 1115 psig and an ASME rated capacity of 889,700 lbs/hour. The RVs also fulfill the automatic depressurization function of the core standby cooling systems (emergency core cooling system) under design basis accident conditions via an automatic or manual actuation of the electro-pneumatic portion of the automatic depressurization system (ADS). Updated Final Analysis Report (UFSAR) Section 4.4 describes the design and operational requirements of the RVs and UFSAR Section 14 describes the related safety analysis.

The current Pilgrim TS 3.6.D.1 provides RV operability requirements. TS 3.6.D.2 provides the required actions if the operability requirements are not met. The Note in TS 3.6.D.2 specifically states that Technical Specifications 3.6.D.2 – 3.6.D.5 apply to the installed two-stage Target Rock RVs. TS 3.6.D.3 requires an engineering evaluation justifying continued reactor operation with a RV discharge pipe temperature greater than 212° F for greater than 24 hours. TS 3.6.D.4 requires NRC approval of the engineering evaluation required by TS 3.6.D.3 to allow power operation to continue beyond 90 days and corrective actions (removal, testing, repair, recalibration, and reinstallation of the RV) at the next cold shutdown of 72 hours or more duration.

Pilgrim TS 3.6.D.1 and TS 3.6.D.2 (excluding the Note) stipulate safety and relief valve operability requirements and actions consistent with those contained in Boiling Water Reactor Standard Technical Specifications (STS, NUREG-1433, Rev. 3) Section 3.4.3 (Reference 1). The requirement for NRC approval of an engineering evaluation is not included in the STS. Accordingly, Entergy proposes to delete the approval requirement included in TS 3.6.D.4, with a corresponding revision to the Bases, and separate the Note from TS 3.6.D.2 to a stand alone Note in the STS format, clarifying that the requirements of TS 3.6.D.3 - 3.6.D.5 apply only to the two-stage Target Rock relief valves.

4. TECHNICAL ANALYSIS

The RVs are part of the reactor coolant pressure boundary and operate by power actuation (i.e., ADS) or self-actuation by process high pressure. The RVs limit peak vessel pressure during overpressure transients to satisfy ASME code requirements. The postulated transients for which safety/relief valve actuation is required are described in Chapters 4 and 14 and in Appendices Q and R of the Pilgrim Updated Final Safety Analysis Report. The ADS provides a means to rapidly depressurize the primary system down to a pressure at which low-pressure cooling systems can provide makeup. In the event of a small or medium break loss of coolant accident (LOCA), the ADS function would be required if the high pressure coolant injection system is unable to maintain vessel water level.

TS 3.6.D.1 provides the operability requirements for both safety and relief valves and requires that they be operable during reactor power operations and prior to reactor startup from cold condition or whenever reactor coolant pressure is greater than 104 psig and temperature greater than 340° F. TS 3.6.D.2 provides the required actions if the operability requirements of TS 3.6.D.1 are not met. No changes are proposed for these operability requirements or actions, except the current Note is separated from TS 3.6.D.2 to a stand alone Note and clarified to ensure the requirements of TS 3.6.D.2 applied to all safety and relief valves.

The current Note in TS 3.6.D.2 was introduced into Pilgrim TS through License Amendment No. 56, dated March 20, 1982. At that time, Pilgrim was experiencing problems with Target Rock two-stage relief valves, which were installed to replace the three-stage valves previously in use. Pilgrim has since operated with only Target Rock two-stage safety relief valves. The location and content of the current Note has the potential to result in misapplication to TS 3.6.D.2 and appears to be placed in error as part of TS 3.6.D.2. Applying the current Note to TS 3.6.D.2 results in the TS having no required actions for inoperable safety valves. The proposed separated stand alone Note is consistent with the STS format and adds clarity. Specifications TS 3.6.D.3 –

3.6.D.5 apply to the installed two-stage Target Rock RVs, but not to the non Target Rock safety valves.

The surveillance requirements 4.6.D.1 and 4.6.D.2 ensure both safety and relief valves are inspected and tested. The surveillance requirement 4.6.D.3 requires that the relief valve discharge pipe temperatures be monitored daily as a means to verify that they are not experiencing any degradation. No changes are made to these surveillance requirements.

TS 3.6.D.3 and 3.6.D.4 provide actions required if any Target Rock RV discharge pipe temperature exceeds 212° F for 24 hours or more. TS 3.6.D.3 and 3.6.D.4 were introduced into the TS through Amendment No. 56. At the time Pilgrim was experiencing problems with Target Rock two-stage RVs, which were installed to replace the three-stage valves previously in use. The requirement in TS 3.6.D.3 to perform an engineering evaluation justifying continued operation when any RV discharge pipe temperature exceeds 212°F for more than 24 hours during power operation is being maintained. Also being maintained is the requirement in TS 3.6.D.4 that any RV whose discharge pipe temperature exceeds 212°F for 24 hours or more shall be removed at the next cold shutdown of 72 hours or more, tested in the as-found condition and re-calibrated as necessary prior to reinstallation.

These requirements ensure that elevated discharge pipe temperatures are adequately evaluated, and that any necessary conditions or limitations are specified to ensure the operability of the RVs during continued power operation. These requirements also ensure that corrective actions will be taken at the next cold shutdown of 72 hours or more in duration to replace the valve. These evaluations and corrective actions will continue to be documented and retained in accordance with the Corrective Action Program and will be available for NRC review.

Approximately 24 years of operating experience has been gained since this requirement was incorporated into Pilgrim's TS through License Amendment 56. It has been Pilgrim's experience that occasionally one or more RV(s) will experience an elevated tailpipe temperature for which an engineering evaluation and NRC approval is required to continue operating beyond 90 days. In virtually every case the engineering evaluation and the basis for justifying continued operation has been essentially the same and an upper temperature limit has been specified that, if exceeded for a stated time period, would require reactor shutdown. Similarly, in virtually every case, the basis for approval by the NRC to continue operating beyond 90 days has been the same (References 2 to 6).

As recently as 2005, Pilgrim completed certain corrective actions aimed at reducing the probability of occurrence of elevated RV tailpipe temperatures. For example, Pilgrim has modified the insulation for all RVs within existing design specifications to minimize temperature gradients to which the valves may be subjected. This includes improving the method and reliability of fastening the insulation to the valve bodies and piping. It is suspected that temperature gradients caused by improper installation of insulation,

including mis-positioned or improperly fastened insulation, play a role in increasing the probability of valve leakage. Industry data appears to corroborate this theory. At Pilgrim, the insulation is inspected and replaced at a specified frequency or sooner if needed. Additionally, Pilgrim examined the specifications and tolerances for valve rebuilds and decided to replace the pilot bodies on some valves instead of welding new seats into the old bodies. Pilgrim implemented these changes in the 2005 spring refueling outage to improve valve performance.

Deleting the requirement for NRC approval of the engineering evaluation justifying continued operation does not impact the safety function, reliability, or operability of the RVs, and does not impact the safety analysis. This requirement is unique to Pilgrim Station even though RV leakage is not unique to Pilgrim. Almost 24 years of operating experience has shown that the issue of valve leakage manifests itself in a consistent way and that the evaluations of the condition and of valve operability have also been consistent for virtually all occurrences and that the basis for NRC approval to continue operating is similarly consistent.

The requirement to obtain NRC approval to continue operating beyond 90 days has been shown to be resource burdensome to both the licensee and the NRC considering the short timeframe in which approval must be obtained, and considering the history of the evaluations and approvals documented in the past. Furthermore, the industry has made significant advancements in the past 24 years in the processes for evaluating degraded and non-conforming conditions including the development of industry guidance, NRC guidance, and robust licensee corrective action programs. Such evaluations are performed at a high level of rigor and are well documented and captured, available for NRC review at any time.

5. REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

Entergy Nuclear Operations, Inc. (Entergy) proposes to clarify a Note in Technical Specification 3.6.D.2 and to delete the requirement included in TS 3.6.D.4 for NRC approval of an engineering evaluation for continued reactor operation beyond 90 days and corrective actions related to the relief valve (RV) discharge pipe temperature greater than 212°F for greater than 24 hours.

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

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

Response: No.

This proposed change deletes the requirement for NRC approval of an engineering evaluation justifying continued operation when an RV tailpipe temperature exceeds 212°F for more than 24 hours and clarifies the applicability of TS 3.6.D.2 to all safety and relief valves.

The RVs will continue to be inspected and tested to perform their safety function as required by the current Specifications. There are no physical changes to the valves, their method of operation, or the set-points at which they operate automatically.

The deletion of the requirement for NRC approval and the clarification of the applicability of Specifications in a Note do not change the plant response to the design basis accident and does not increase the probability of inadvertent RV operation. Therefore, the proposed change does not significantly increase the probability or consequences of any previously evaluated accidents.

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

Response: No.

The safety function of the RVs is to provide over-pressure protection of the primary coolant pressure boundary. Additionally, they automatically function to rapidly depressurize the primary system to a pressure at which low-pressure cooling systems can provide makeup. The proposed change deletes a requirement for NRC approval to continue operating, and clarifies a Note in Technical Specifications. The proposed change does not involve any hardware changes, installation of new equipment, or set-point changes and does not introduce any new modes of equipment operation or failure. 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 ability of the RVs to perform their safety function is maintained during operation and will continue to be tested as required. No changes are being proposed to the valves, their method of operation, or their set-points and there are no impacts to the analyses for which the RVs are credited. Therefore, the proposed deletion of the requirement in TS 3.6.D.4 for NRC approval to continue operating and clarification of a Note in Technical Specifications do not involve a significant reduction in a margin of safety.

Accordingly, Entergy concludes that the proposed change 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 change deletes the NRC approval requirement and clarifies a Note in a Specification applicable to a system/component located within the restricted area, as defined in 10 CFR 20. However, the proposed change 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, (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria 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 change.

6. REFERENCES

1. NUREG-1433, "Standard Technical Specifications for General Electric Plants, BWR/4," Section 3.4.3.
2. Pilgrim License Amendment No. 208, NRC Approval of Engineering Evaluation of Elevated Safety Relief Valve Discharge Pipe Temperature (TAC. No. MC4651), dated December 23, 2004.
3. NRC Letter (TAC No. MB0874), Engineering Evaluation for Leaking Safety Relief Valve 203-3B, dated February 21, 2001.
4. NRC Letter (TAC No. MA0881), Engineering Evaluation for Leaking Safety Relief Valve 203-3B, dated March 19, 1998.
5. NRC Letter (TAC No. 81678), Engineering Evaluation for Leaking Safety Relief Valve 203-3D, dated October 24, 1991.
6. NRC Letter (TAC No. MC1799), Withdrawal of Proposed Amendment Request for NRC Approval of Engineering Evaluation of Elevated Safety Relief Valve Discharge Pipe Temperature of Relief valves RV-203-3A and RV-203-3D, dated April 26, 2004.

ATTACHMENT 2

MARKED-UP TECHNICAL SPECIFICATION AND BASES PAGES

(3 pages)

TS pages: 3/4.6-6 and 3/4.6-7
TS Bases page: B3/4.6-8

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.

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.2³ 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.

NOTE

Technical Specifications 3.6.D.3 - 3.6.D.5 apply to the two Stage Target Rock relief valves.

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3/4.6-6

LIMITING CONDITIONS FOR OPERATION

3.6 PRIMARY SYSTEM BOUNDARY (Cont)

D. Safety Relief Valves (Cont)

4. Any safety relief valve whose discharge pipe temperature exceeds 212°F for 24 hours or more shall be removed at the next cold shutdown of 72 hours or more, tested in the as-found condition, and recalibrated as necessary prior to reinstallation.

Power operation shall not continue beyond 90 days from the initial discovery of discharge pipe temperatures in excess of 212°F for more than 24 hours without prior NRC approval of the engineering evaluation delineated in 3.6.D.3.

5. The limiting conditions of operation for the instrumentation that monitors tail pipe temperature are given in Table 3.2-F.

E. Jet Pumps

1. Whenever the reactor is in the Startup or Run Modes, all jet pumps shall be Operable. If it is determined that a jet pump is inoperable, the reactor shall be in Hot Shutdown within 12 hours.

SURVEILLANCE REQUIREMENTS

4.6 PRIMARY SYSTEM BOUNDARY (Cont)

E. Jet Pumps

NOTES

1. Not required to be performed until 4 hours after the associated recirculation loop is in operation.
2. Not required to be performed until 24 hours after >25% Rated Thermal Power.

Whenever there is recirculation flow with the reactor in the Startup or Run Modes, jet pump operability shall be checked daily by verifying at least one of the following criteria (1, 2, or 3) is satisfied for each operating recirculation loop:

1. Recirculation pump flow to speed ratio differs by $\leq 5\%$ from established patterns, and jet pump loop flow to recirculation pump speed ratio differs by $\leq 5\%$ from established patterns.
2. Each jet pump diffuser to lower plenum differential pressure differs by $\leq 20\%$ from established patterns.
3. Each jet pump flow differs by $\leq 10\%$ from established patterns.

BASES:

3/4.6 PRIMARY SYSTEM BOUNDARY (Cont)

D. Safety and Relief Valves (Cont)

A main steam line isolation with flux scram has been selected to be used as the safety valve sizing transient since this transient results in the highest peak vessel pressure of any transient when analyzed with an indirect scram. The original FSAR analysis concluded that the peak pressure transient with indirect scram would be caused by a loss of condenser vacuum (turbine trip with failure of the bypass valves to open). However, later observations have shown that the long lengths of steam lines to the turbine buffer the faster stop valve closure isolation and thereby reduce the peak pressure caused by this transient to a value below that produced by a main steam line isolation with flux scram.

Item 3 above indicates that no credit be taken for the primary scram signal generated by closure of the main steam isolation valves. Two other scram initiation signals would be generated, one due to high neutron flux and one due to high reactor pressure. Thus item 3 will be satisfied by assuming a scram due to high neutron flux.

Relieving capacity of 44% (4 relief/safety valves) in combination with 16% (2 safety valves) results in a peak pressure during the transient conditions used in the safety valve sizing analysis which is well below the pressure safety limit. 

The relief/safety valve settings satisfy the Code requirements that the lowest safety valve set point be at or below the vessel design pressure range to prevent unnecessary cycling caused by minor transients. The results of postulated transients where inherent relief/safety valve actuation is required are given in Appendices R and Q of the Final Safety Analysis Report.

Experience in safety valve operation shows that a testing of at least 50% of the safety valves per refueling outage is adequate to detect failures or deterioration. The tolerance value of $\pm 1\%$ is in accordance with Section III of the ASME Boiler and Pressure Vessel Code. An analysis has been performed which shows that with all safety valves set 1% higher, the reactor coolant pressure safety limit of 1375 psig is not exceeded.

The relief/safety valves have two functions; i.e., power relief or self-actuated by high pressure. Power relief is a solenoid actuated function (Automatic Pressure Relief) in which external instrumentation signals of coincident high drywell pressure and low-low water level initiate the valves to open. This function is discussed in Specification 3.5.D. In addition, the valves can be operated manually.

Pilgrim's experience with 2 stage safety/relief valves has demonstrated that minimum leakage exists when the tailpipe temperature is 215° Fahrenheit. Therefore, a reporting requirement triggered by a temperature of 212°F is conservative, and assures timely reporting before leakage reaches significant proportions. 