April 17, 2003

Mr. Mike Bellamy
Site Vice President
Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

SUBJECT: PILGRIM NUCLEAR POWER STATION - ISSUANCE OF AMENDMENT RE: INSTRUMENTATION TRIP LEVEL SETTINGS AND CALIBRATION INTERVALS CHANGES (TAC NO. MB3613)

Dear Mr. Bellamy:

The Commission has issued the enclosed Amendment No. 198 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated October 10, 2002, as supplemented on November 22, 2002 and January 28, 2003. The October 10, 2002, application replaced your original application dated December 12, 2001. The November 22, 2002, and January 28, 2003, supplements were within the scope of the original application and did not change the staff's proposed no significant hazards consideration determination.

This amendment changes Technical Specification (TS) Tables 3.2.A, 3.2.B, 4.2.A, and 4.2.B. The proposed changes affect various instrument trip level settings and decrease calibration frequencies for a variety of instruments. The proposed changes identify that the Reactor Water Cleanup (RWCU) system requires one channel in each of the two trip systems for each location. The proposed changes also clarify the titles of certain trip systems; move note numbers to their proper location; and correct a mis-referenced figure in a table note. Appropriate Bases pages were also changed to reflect the TS changes.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,
/RA/

Travis L. Tate, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-293

Enclosures: 1. Amendment No. 198 to License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

Pilgrim Nuclear Power Station

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This amendment changes Technical Specification (TS) Tables 3.2.A, 3.2.B, 4.2.A, and 4.2.B. The proposed changes affect various instrument trip level settings and decrease calibration frequencies for a variety of instruments. The proposed changes identify that the Reactor Water Cleanup (RWCU) system requires one channel in each of the two trip systems for each location. The proposed changes also clarify the titles of certain trip systems; move note numbers to their proper location; and correct a mis-referenced figure in a table note. Appropriate Bases pages were also changed to reflect the TS changes.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,
/RA/
Travis L. Tate, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-293
Enclosures: 1. Amendment No. to License No. DPR-35
2. Safety Evaluation
cc w/encls: See next page

DISTRIBUTION:

JClifford	CAnderson, RI	PUBLIC	CRaynor	EMarinos
PDI-2 Reading	TTate	OGC	FArner, RI	GHill (2)
ACRS	RDennig	SRichards	JBobiak, RI	SWeerakkody
RCaruso	TFord	IAhmed	EThrom	

ADAMS Accession Numbers: ML030690008, TS(s): ML , Package: ML
*See previous concurrence

OFFICE	PD1-2/PM	PDI-2/PM	PDI-2/LA	SRXB	SPLB	EEIB	OGC	PDI-2/SC
NAME	RPulsifer	TTate	CRaynor	RCaruso*	SWeerkakkody*	EMarinos*	RHoefling*	JBoska for JClifford
DATE	4/14/03	4/11/03	4/11/03	2/24/03	2/3/03	3/5/03	3/18/03	4/17/03

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ENTERGY NUCLEAR GENERATION COMPANY

ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 198
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment filed by the Entergy Nuclear Operations, Inc. (the licensee) dated December 12, 2001, replaced by application dated October 10, 2002, as supplemented on November 22, 2002 and January 28, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-35 is hereby amended to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 198, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: 04/17/03

ATTACHMENT TO LICENSE AMENDMENT NO. 198

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3/4.2-7	3/4.2-7
3/4.2-16	3/4.2-16
3/4.2-17	3/4.2-17
3/4.2-31	3/4.2-31
3/4.2-32	3/4.2-32
3/4.2-33	3/4.2-33
3/4.2-41	3/4.2-41
B3/4.2-2	B3/4.2-2
B3/4.2-3	B3/4.2-3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 198 TO FACILITY OPERATING LICENSE NO. DPR-35

ENTERGY NUCLEAR GENERATION COMPANY

ENTERGY NUCLEAR OPERATIONS, INC.

PILGRIM NUCLEAR POWER STATION

DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated October 10, 2002 (Reference 1), as supplemented on November 22, 2002 (Reference 2), and January 28, 2003 (Reference 3), Entergy Nuclear Operations, Inc. (the licensee) submitted a request for changes to the Pilgrim Nuclear Power Station (Pilgrim) Technical Specifications (TSs). The October 10, 2002, application replaced the licensee's original application dated December 12, 2001 (Reference 4). The requested changes would revise TS Tables 3.2.A, 3.2.B, 4.2.A, and 4.2.B. The proposed changes affect various instrument trip level settings and decrease calibration frequencies for a variety of instruments. The proposed changes identify that the Reactor Water Cleanup (RWCU) system requires one channel in each of the two trip systems for each location. The proposed changes also clarify the titles of certain trip systems, move note numbers to their proper location, and correct a mis-referenced figure in a table note. Appropriate Basis pages were also changed to reflect the TS changes. The November 22, 2002, and January 28, 2003, supplements were within the scope of the original application and did not change the staff's proposed no significant hazards consideration determination.

2.0 REGULATORY EVALUATION

Improved reactor fuels allow licensees to consider an increase in the duration of the fuel cycle for their facilities and requires a license amendment in order to change the instrumentation surveillance intervals. To provide generic guidance to the licensees for preparing such license amendment requests, the staff issued Generic Letter (GL) 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991 (Reference 5). By following GL 91-04 guidance, the licensee of a nuclear power plant can request a revision of the plant's TSs to extend an instrument surveillance test interval (STI) up to a period of 24 months, plus a 25% margin (e.g., 15 months for a 1-year calibration interval and 30 months for a 2-year calibration interval).

GL 91-04 requires licensees to evaluate the safety effects of the proposed STI extension. For those instruments whose setpoint drift does not cause instrument error, this evaluation should: (1) support a conclusion that the effect on safety is small, (2) confirm that historical maintenance and surveillance data do not invalidate this conclusion, and (3) confirm that the

performance of surveillance at the bounding surveillance interval would not invalidate any assumption in the plant licensing basis. For those instruments, whose setpoint drift could introduce instrument error, GL 91-04 requires licensees to address instrument drift when proposing a STI increase for calibrating instruments that perform safety functions. The GL states that the effect of the increased calibration interval on instrument uncertainties must be addressed because the instrument uncertainties caused by drift were considered when determining safety system setpoints and when performing safety analyses. Enclosure 2 of the GL describes information that licensees are required to address. This information addresses the effect instrument drift, caused by an increased calibration interval, can have on safety. The enclosure includes the following seven actions that licensees should address to justify a proposed increase in instrument calibration interval.

1. Confirm that instrument drift as determined by as-found and as-left calibration data from surveillance and maintenance records has not, except on rare occasions, exceeded acceptable limits for a calibration interval.

2. Confirm that the values of drift for each instrument type (make, model, and range) and application have been determined with a high probability and a high degree of confidence. Provide a summary of the methodology and assumptions used to determine the rate of instrument drift with time, based upon historical plant calibration data.

3. Confirm that the magnitude of instrument drift has been determined with a high probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type (make, model number, and range) and application that performs a safety function. Provide a list of the channels by TS section that identifies these instrument applications.

4. Confirm that a comparison of the projected instrument drift errors has been made with the values of drift used in the setpoint analysis. If this results in revised setpoints to accommodate larger drift errors, provide proposed TS changes to update trip setpoints. If the drift errors result in a revised safety analysis to support existing setpoints, provide a summary of the updated analysis conclusions to confirm that safety limits and safety analysis assumptions are not exceeded.

5. Confirm that the projected instrument errors caused by drift are acceptable for control of plant parameters to effect a safe shutdown with the associated instrumentation.

6. Confirm that all conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant surveillance procedures for channel checks, channel functional tests, and channel calibrations.

7. Provide a summary description of the program for monitoring and assessing the effects of increased calibration surveillance intervals on instrument drift and its effect on safety.

The Nuclear Regulatory Commission (NRC) staff finds that the licensee, in Attachment 1 of its October 10, 2002, submittal, identified the applicable regulatory requirements. The regulatory requirements for which the staff based its acceptance are GL 91-04, Regulatory Guide (RG) 1.105, and Title 10 of the *Code of Federal Regulations* (CFR) Part 20.

3.0 TECHNICAL EVALUATION

The licensee determined the proposed instrument setpoint changes following the guidance of RG 1.105, Revision 2 (Reference 6). The licensee stated that this is a more recent and rigorous methodology than that used for the original license and design bases for these instruments. The licensee determined the trip level settings by analyzing the instruments in accordance with procedures that are subject to a quality assurance program that complies with 10 CFR Part 50, Appendix B (Reference 7). The analyses supporting the setpoint changes are based on a 95% probability, established in Reference 6, that the trips would occur before the design basis analytical limit is exceeded. Each instrument has a documented "analytical limit" and an "allowable limit." The setpoint calculations fully document the basis for the changes to limits, trip level settings, and calibration frequencies.

3.1 Description of proposed changes

1. Pilgrim proposes the following changes to TS Table 3.2.A, “Instrumentation That Initiates Primary Containment Isolation.”

   a) The current trip level setting for the “Main Steam Line Tunnel Exhaust Duct High Temperature” is $\leq$170 degrees Fahrenheit ($^\circ$F). Pilgrim proposes to change the trip level setting to $\leq$175°F.

   b) The trip level setting of the “Turbine Basement Exhaust Duct High Temperature” is currently $\leq$150°F. Pilgrim proposes to change the trip level setting to $\leq$155°F.

   c) The name of the instrument “Reactor Cleanup System High Flow” is changed to “Reactor Water Cleanup System (RWCU) High Flow.”

   d) The trip setting of the “Reactor Cleanup System High Temperature” is currently $\leq$150°F. Pilgrim proposes to change the trip level setting to $\leq$148°F. The number of required channels is changed to identify the sensors and their locations consistent with plant design and to show that there is one required channel in each of the two trip systems for each location. The sensors and their locations are as follows:

      “RWCU Back Wash Receiver Tank Room High Temperature”
      “RWCU Heat Exchanger and Pump Rooms High Temperature”
      “RWCU Line in RHR [Residual Heat Removal] Valve Room “A” High Temperature”

"RWCU Line Near East CRD [Control Rod Drive] Modules High Temperature"

e) The column identifying the number of available channels is removed from the table.

2. Pilgrim proposes the following changes to TS Table 3.2.B, "Instrumentation That Initiates or Controls the Core and Containment Cooling Systems."

a) Not used.

b) Not used.

c) The trip level settings of the " RCIC [Reactor Core Isolation Cooling] Turbine Compartment Wall" is currently $\leq$170°F. Pilgrim proposes to change the trip level setting to $\leq$168°F.

d) The "Torus Cavity Exhaust Duct" is renamed "RCIC Exhaust Duct Torus Cavity." The trip level setting of the "RCIC Exhaust Duct Torus Cavity" is currently $\leq$150°F. Pilgrim proposes to change the trip level setting to $\leq$148°F.

e) The trip level setting of the "RCIC Valve Station Area Wall" is currently $\leq$200°F. Pilgrim proposes to change the trip level setting to $\leq$198°F.

f) The "RCIC Steam Line Lo-Press" is renamed "RCIC Steam Line Low Pressure." The current trip level setting for the "RCIC Steam Line Low Pressure" trip level setting is 100>P>50 pounds per square inch gauge (psig). The new trip level setting is proposed to be 77>P>63 psig.

g) The current trip level setting of the "HPCI [High Pressure Coolant Injection] Turbine Steam Line High Flow" is $\leq$300% of rated flow. Pilgrim proposes to change the trip level setting to $\leq$296% of rated flow.

h) The "HPCI Turbine Compartment Exhaust Ducts" is renamed "HPCI Turbine Compartment Exhaust Duct." The trip level settings of the "HPCI Turbine Compartment Exhaust Duct" is currently $\leq$170°F. Pilgrim proposes to change the trip level setting to $\leq$168°F.

i) The "Torus Cavity Exhaust Duct" for HPCI is renamed "HPCI Exhaust Duct Torus Cavity." The current trip level setting for the "HPCI Exhaust Duct Torus Cavity" high temperature is 190°F - 200°F. Pilgrim proposes to change the trip level setting to $\leq$198°F.

j) The current trip level setting for the "HPCI/RHR Valve Station Area Exhaust Duct" high temperature is currently $\leq$170°F. Pilgrim proposes to change the trip level settings to $\leq$168°F.

k) TS Table 3.2.B, footnote 6, is added regarding the trip level setting for the RCIC steam line low-pressure trip function. The footnote clarifies that the pressure

indicated for the trip level setting, 70 ± 7 psig, does not include the static head pressure which is 17.5 psi.

l) Pilgrim proposes to move the note numbers on TS Table 3.2.B to the "Remarks" column to correct the numbers' misplacement.

3. Pilgrim proposes the following changes to TS Table 4.2.A, "Minimum Test and Calibration Frequency for PCIS."

a) The current calibration frequency of the "Main Steam High Temp" is "Once/3 months." Pilgrim proposes to change the calibration frequency to "Once/24 months."

b) The "Reactor Water Cleanup High Flow" on TS Table 4.2.A is renamed "Reactor Water Cleanup System (RWCU) High Flow." The "Reactor Water Cleanup High Temp" on TS Table 4.2.A is changed to the following to reflect the change made to TS Table 3.2.A (see item 1d) (The numbers in parentheses refer to Section 4.1, "Description of proposed changes," in this document).

"RWCU Back Wash Receiver Tank Room High Temperature"
"RWCU Heat Exchanger and Pump Rooms High Temperature"
"RWCU Line in RHR Valve Room "A" High Temperature"
"RWCU Line Near East CRD Modules High Temperature"

The current calibration frequency for the "Reactor Water Cleanup High Temp" is "Once/3 months." Pilgrim proposes to change the calibration frequency to "Once/24 months."

c) Reference to Figure 4.1.1 in Note 1 on "Notes for Tables 4.2.A through 4.2.G" is changed to reference the correct figure, which is Figure 4.2-1.

4. Pilgrim proposes the following changes to TS Table 4.2.B, "Minimum Test and Calibration Frequency for [Core Standby Cooling System] CSCS." (Page 3/4.2-2)

a) Not used.

b) The current calibration frequency of the "Steam Line High Temp. (HPCI and RCIC)" is "Once/3 months." Pilgrim proposes to change the calibration frequency to "Once/24 months."

c) The current calibration frequency of the "Safeguards Area High Temp." is "Once/3 months." Pilgrim proposes to change the calibration frequency to "Once/24 months."

d) The current calibration frequency for the "RCIC Steam Line Low Pressure" is "Once/3 months." Pilgrim proposes to change the calibration frequency for these instrument channels to "Once/12 months."

5. Following approval of the proposed TS changes, Pilgrim will make the following changes to the TS Bases in accordance with TS 5.6.6 (Technical Specifications Bases Control Program).

   a) Pilgrim proposes the following change to TS Bases 3.2 “Protective Instrumentation” (Page B3/4.2-3)

      The current setting of 170°F for the main steam line tunnel detector is low enough to detect leaks on the order of 5 -10 gallons per minute (gpm). Pilgrim proposes to change the trip value to 175°F for the “main steam line tunnel detector,” which is low enough to detect leaks of ≥20 gpm.

   b) Pilgrim proposes the following changes to TS Bases 3.2 “Protective Instrumentation.”

      i) The current setting of ≤300% of design flow for HPCI high flow and 200°F or 170°F, depending on sensor location, for HPCI high temperature require revision. Pilgrim proposes to change the HPCI high flow trip value to ≤296% and HPCI high temperature sensors to ≤198°F or ≤168°F, depending on sensor location.

      ii) The current setting for RCIC area high temperature is 200°F, 170°F, or 150°F, depending on sensor location. Pilgrim proposes to change the RCIC high temperature sensor trip setting to ≤198°F, ≤168°F, or ≤148°F, depending on sensor location.

      iii) The current Bases description of the RWCU system temperature and high flow instrumentation is changed by substituting the phrase “... is arranged with one instrument in each trip system for each area” for the current “... are arranged similar as that for the HPCI.”

The functions affected by the proposed changes provide isolation signals to isolate non-limiting leaks from piping outside of containment. These instruments do not have a design basis safety function. Other functions provide the required isolation during design basis accidents.

The new calculated instrument setpoints were evaluated by the licensee against the original associated analysis assumptions. The original associated analysis assumptions correspond to the nominal setpoints originally identified in the TSs for these instruments. When possible, the original associated analysis assumptions were maintained. The proposed instrumentation setpoints support the analysis assumptions (See items 1d, 2c, 2d, 2e, 2f, 2g, 2h, 2i, and 2j).

Applying RG 1.105, Revision 2 to the original analysis assumptions resulted in inadequate margins to support plant operational needs (e.g., potential for spurious actuations). The associated analysis was revised to provide necessary margin (1a and 1b). The values chosen for the new analysis assumptions were chosen to be high enough to support plant operational needs while being low enough to limit the potential impact of the associated leaks.

3.2 Main Steam Line Tunnel Exhaust Duct High Temperature (1a)

The purpose of this isolation is to limit the release of radiation during a non-limiting leak from the main steam lines, while other systems and functions are designed to address the limiting main steam line break. This isolation is designed to limit the dose effects of the analyzed leak to within 10 CFR 20 dose limits and ensure that, for leaks smaller than the analyzed leak, it is not credible that dose limits are challenged prior to manually isolating the leak.

The trip level setting for the "Main Steam Line Tunnel Exhaust Duct High Temperature" (1a) is currently $\leq 170°F$, based on detection and isolation of a 10 gpm leak from the main steam lines inside the main steam tunnel while meeting 10 CFR 20 dose limits. The licensee proposed that the trip level setting be increased to $\leq 175°F$ to support an analytical limit of 178°F (the value used in the licensee's analyses). The new trip setting allows detection and isolation of a main steam line leak of 20 gpm. Licensee calculations show that 20 gpm of system leakage would be detected and isolated in a timely manner (approximately 1.5 hours). The licensee also determined that the 20 gpm leakage would need to go undetected for greater than 1,000 days before 10 CFR 20 dose limits could be exceeded. Such a leak going undetected for this period of time is highly unlikely, and the licensee concluded that the new setting does not result in consequences that exceed 10 CFR 20 dose limits. The licensee also determined that there is no impact on environmental qualification (EQ) of electrical equipment from the potential increase in main steam tunnel temperatures. The licensee stated that the new setting ensures adequate margins exist between the trip level setting and the new design basis analytical limit to account for all instrument and process inaccuracies and is high enough to avoid spurious isolation signals. Leaks <20 gpm from adjacent feedwater and RWCU piping inside the main steam tunnel will still be detected by this instrumentation and result in increased area temperature indication in the control room. The licensee stated that if the temperature increase persists, actions to identify and isolate these leaks can still be performed as described in the current licensing basis.

The staff reviewed the licensee's analysis and, based on engineering judgement, finds the revised trip level setpoint of $\leq 175°F$ acceptable for the "Main Steam Line Tunnel Exhaust Duct High Temperature." In addition, the staff finds there is reasonable assurance that leaks would be detected before 10 CFR 20 radiological limits could be exceeded.

3.3 Turbine Basement Exhaust Duct High Temperature (1b)

The purpose of this isolation is to limit the release of radiation during a non-limiting leak from the main steam lines, while other systems and functions are designed to address a limiting main steam line break. This isolation is designed to limit dose effects of the analyzed leak to within 10 CFR 20 dose limits. It will also ensure that for leaks smaller than the analyzed leak, it would not be credible that dose limits are challenged prior to manually isolating the leak.

The trip level setting for the "Turbine Basement Exhaust Duct High Temperature" is currently $\leq 150°F$, based on detection and isolation of a 150 gpm leak from the main steam lines in the turbine basement while meeting 10 CFR 20 dose limits. It is proposed that the trip level setting be increased to $\leq 155°F$ to support an analytical limit of 158°F (the value used in the licensee's analyses). The new trip setting allows detection and isolation of a main steam line leak of 225 gpm. Licensee calculations show that the system leakage would still be detected and isolated in a timely manner (approximately 1.3 hours). The licensee also determined that

the 225 gpm leak would need to go undetected for greater than 7 days before 10 CFR 20 dose limits could be exceeded. Such a leak going undetected for this period of time is unlikely and the licensee concluded that the new setting does not result in consequences that exceed 10 CFR 20 dose limits. The licensee also determined that there is no impact on EQ of electrical equipment from the potential increase in main steam tunnel temperatures. The new setting ensures adequate margins exist between the trip level setting and the new design basis analytical limit to account for all instrument and process inaccuracies and is high enough to avoid spurious isolation signals. Leaks from other piping in the turbine basement will still be detected by this instrumentation. The licensee stated that if the temperature increase persists, actions to identify and isolate these leaks can still be performed as described in the current licensing basis.

The staff reviewed the licensee's analysis and, based on engineering judgement, finds the revised trip level setpoint of $\leq 155^{\circ}F$ acceptable for the "Turbine Basement Exhaust Duct High Temperature." In addition, the staff finds there is reasonable assurance that leaks would be detected before 10 CFR 20 radiological limits could be exceeded.

3.4 Reactor Cleanup System High Temperature (1d)

High temperature in the vicinity of the RWCU equipment and piping could indicate a break in a RWCU line. When high temperature occurs near this equipment, the RWCU system is automatically isolated. The purposed of this isolation is to prevent the excessive loss of reactor coolant and the release of significant amounts of radioactive material.

The trip level setting of the "Reactor Cleanup System High Temperature" (1d) is currently $\leq 150^{\circ}F$. The setpoint was originally set to the analytical limit. The licensee proposed that the trip level setting be decreased to $\leq 148^{\circ}F$ to support the analytical limit of $150^{\circ}F$ for all four sensor locations. This new trip level setting ensures that the analytical limit of $150^{\circ}F$ will not be exceeded and timely detection and isolation of the RWCU system occurs in the event of a RWCU line break. Accounting for instrument inaccuracies, the new trip level setting of $\leq 148^{\circ}F$ is sufficiently above normal operational upper limits to avoid spurious isolation, yet low enough to provide timely detection of a line break. Therefore, this trip level setpoint is acceptable.

The licensee proposed to delineate the RWCU system high temperature instruments by replacing the "Reactor Water Cleanup High Temp" instrument channel with four instrument locations to ensure the appropriate requirements are implemented. These four RWCU instrument locations are:

"RWCU Back Wash Receiver Tank Room High Temperature"
"RWCU Heat Exchanger and Pump Rooms High Temperature"
"RWCU Line in RHR Valve Room "A" High Temperature"
"RWCU Line Near East CRD Modules High Temperature"

This delineation of the "Reactor Cleanup System High Temperature" instrument in TS Table 3.2.A into four specific instrument locations clarifies the location of these instruments. This change is administrative in nature and is acceptable.

High temperature in the vicinity of the RWCU system is sensed by four sets of two bimetallic temperature switches. A set of two temperature switches are installed in each of the four areas

to be monitored. Each of the switches in an area is capable of initiating isolation of its associated valve(s). The minimum number of instrument channels required to be operable for each location is changed to one in each of 2 trip systems (1d). The minimum number of instrument channels required to be operable for the current delineation of the "Reactor Cleanup System High Temperature" is two. Designating the four separate areas being monitored clarifies the description of the trip arrangement. There were no equipment changes or revisions to the trip system. A trip of any one of the instrument channels still isolates one of the two RWCU isolation valves, and this is acceptable. This change is consistent with plant design as described in the Updated Final Safety Analysis Report and the presentation of this function in NUREG-1433, "Standard Technical Specifications [STS], General Electric Plants, BWR 4."

The staff finds the revised trip level setpoint of $\leq 148°F$ acceptable for the four instrument locations and that there is reasonable assurance that leaks would be detected and the RWCU system isolated before the analytical limits are exceeded. As noted above, the change in the designation of the RWCU high temperature trips into four areas and the change in the minimum number of operable channels was made to clarify the RWCU high temperature trip arrangement and is acceptable.

3.5 RCIC Turbine Compartment Wall (2c), RCIC Exhaust Duct Torus Cavity (2d), and RCIC Valve Station Area Wall (2e)

The trip level setting for the "RCIC Turbine Compartment Wall" (2c) is currently $\leq 170°F$. The setpoint was originally set to the analytical limit. The proposed trip level setting is $\leq 168°F$ to support an analytical limit of $170°F$.

The trip level setting for the "RCIC Exhaust Duct Torus Cavity" (2d) is currently $\leq 150°F$. The setpoint was originally set to the analytical limit. The proposed trip level setting is $\leq 148°F$ to support an analytical limit of $150°F$. The trip level setting for the "RCIC Valve Station Area Wall" (2e) is currently $\leq 200°F$. The setpoint was originally set to the analytical limit. The proposed trip level setting is $\leq 198°F$ to support an analytical limit of $200°F$.

The new trip level settings for the "RCIC Turbine Compartment Wall" (2c), "RCIC Exhaust Duct Torus Cavity" (2d), and "RCIC Valve Station Area Wall" (2e) are lower. The analytical limits for these setpoints are based on detecting RCIC steam line leaks of approximately 10 gpm and initiating isolation of the RCIC steam line. Licensee calculations conclude that satisfactory margins exist between the trip level settings and the design basis analytical limit to account for instrument and process inaccuracies. The probability of an inadvertent actuation caused by the decrease in operating margin was evaluated by the licensee and found to be acceptable. The proposed changes do not increase the probability of an inadvertent actuation based on normal historical operating conditions. The new trip level settings are sufficiently below those for the HPCI system so that preferential isolation of the RCIC steam line occurs in the event of a small line break, and permits the HPCI system to remain operable.

The staff reviewed the licensee's analysis and, based on engineering judgement, finds the revised trip level setpoint of $\leq 168°F$ for "RCIC Turbine Compartment Wall," $\leq 148°F$ for "RCIC Exhaust Duct Torus Cavity," and $\leq 198°F$ for "RCIC Valve Station Area Wall," acceptable. There is reasonable assurance that leaks would be detected and isolation of the RCIC steam line would occur in the event of a small line break, permitting the HPCI system to remain operable.

Renaming the RCIC “Torus Cavity Exhaust Duct” to “RCIC Exhaust Duct Torus Cavity” (2d) clarifies the instruments' location. This is an administrative change and has no impact on safety and is acceptable.

3.6 RCIC Steam Line Low Pressure (2f)

Renaming the “RCIC Steam Line Lo Pressure” to “RCIC Steam Line Low Pressure” (2f) clarifies the instruments' title. This is an administrative change and has no impact on safety and is acceptable.

The trip level setting for the “RCIC Steam Line Low Pressure” (2f), is currently 100>P>50 psig. The setpoint was originally set to the analytical limit. The proposed trip level setting is 77>P>63 psig. The analytical limits (100>P>50 psig) for the “RCIC Steam Line Low Pressure” (2f) were selected by the licensee to ensure the RCIC steam line is isolated at a value that ensures steam and radioactive gases will not escape from the RCIC turbine shaft seals into the reactor building after steam pressure has decreased to such a low value that the turbine can not be operated. The proposed trip level setting of 77>P>63 psig, by taking into account total instrument loop uncertainty, ensures steam line isolation occurs before the analytical limit is exceeded.

The staff finds the revised trip level setpoint of 77>P>63 psig acceptable for the “RCIC Steam Line Low Pressure” because the licensee has conservatively adjusted the trip setpoints accounting for instrument loop uncertainty in accordance with RG 1.105. There is reasonable assurance that leaks would be detected and steam line isolation would occur before the analytical limit is exceeded.

3.7 HPCI Turbine Steam Line High Flow (2g)

The “HPCI Turbine Steam Line High Flow” (2g) trip level setting is currently $\leq$300% of rated flow. The setpoint was originally set to the analytical limit. The proposed trip level setting for the “HPCI Turbine Steam Line High Flow” instruments of $\leq$296% is more conservative than the current setting because it isolates HPCI at a slightly lower flow, thereby increasing the margin between the trip level setting and the analytical limit of 300%. The new trip level setting is closer to the normal operating band but it has been determined by the licensee that adequate operating margin exists. This change does not adversely impact HPCI performance.

The staff finds the revised trip level setpoint of $\leq$296% acceptable for the “HPCI Turbine Steam Line High Flow” because it is a more conservative value and provides more margin to the analytic value. There is reasonable assurance that leaks would be detected and steam line isolation would occur before the analytical limit is exceeded.

3.8 HPCI Turbine Compartment Exhaust Duct (2h), HPCI Exhaust Duct Torus Cavity (2i), and HPCI/RHR Valve Station Area Exhaust Duct (2j)

Renaming the “HPCI Turbine Compartment Exhaust Ducts” to “HPCI Turbine Compartment Exhaust Duct” (2h) in TS Table 3.2.B clarifies the instruments' title. This is an administrative change and has no impact on safety and is acceptable.

The trip level setting for the “HPCI Turbine Compartment Exhaust Duct” (2h) is currently ≤170°F. The setpoint was originally set to the analytical limit. The proposed trip level setting is ≤168°F to support an analytical limit of 170°F.

Renaming the HPCI “Torus Cavity Exhaust Duct” to “HPCI Exhaust Duct Torus Cavity” (2i) clarifies the instruments' location. This is an administrative change and has no impact on safety and is acceptable.

The trip level setting for the “HPCI Exhaust Duct Torus Cavity” (2i) is currently in the range 190°F - 200°F. The proposed setting is ≤198°F to support an analytical limit of 200°F with the removal of the bottom of the band for the isolation. The lower end of the current band is to preserve system availability by establishing a setting high enough to preclude spurious isolations. However, this lower setting is not assumed in the accident analysis and therefore, is removed from the TSs.

The trip level setting for the “HPCI/RHR Valve Station Area Exhaust Duct” (2j) is currently ≤170°F. The setpoint was originally set to the analytical limit. The proposed trip level setting is ≤168°F to support an analytical limit of 170°F.

The new trip level settings for the “HPCI Turbine Compartment Exhaust Duct” (2h), “HPCI Exhaust Duct Torus Cavity” (2i), and “HPCI/RHR Valve Station Area Exhaust Duct” (2j) are lower than the current settings. The analytical limits for these setpoints are based on detecting HPCI steam line leaks of approximately 10 gpm and initiating isolation of the HPCI steam line. Decreasing the trip level settings will slightly improve the ability of the instrumentation to detect and isolate steam leaks.

Licensee calculations conclude that satisfactory margins exist between the trip level settings and the design basis analytical limit to account for all instrument and process inaccuracies. The probability of an inadvertent actuation caused by the decrease in operating margin was evaluated by the licensee and found to be acceptable. The proposed changes do not increase the probability of an inadvertent actuation based on normal historical operating conditions.

Based on engineering judgement, the staff finds the more conservative revised trip level setpoint of ≤168°F for “HPCI Turbine Compartment Exhaust Duct,” ≤198°F for “HPCI Exhaust Duct Torus Cavity,” and ≤168°F for “HPCI/RHR Valve Station Area Exhaust Duct,” acceptable. There is reasonable assurance that leaks would be detected and initiating isolation of the HPCI steam line before the analytical limits are exceeded.

3.9 Addition of Note 6 to “Notes for Table 3.2.B” (2k)

The addition of Note 6 (2k) provides information concerning the presence of a 17.5 psi static head due to the difference in elevation between the location of the sensing lines attached to the RCIC steam line and the location of the pressure sensing instrument. The note is intended to clarify that the trip level setting is based on the pressure in the steam line (process pressure) rather than instrument sensed pressure. Adding Note 6 does not affect the safety setting, provides only explanatory information, and has no impact on safety and is, therefore, acceptable.

3.10 Revisions to TS Tables 4.2.A and 4.2.B (3a, 3b, 3c, 4b, 4c, and 4d)

The current Pilgrim TSs requires instrument calibration frequency for each of the following instrument channels once per 3 months:

TS Table 4.2.A for PCIS
- Main Steam High Temp.
- Reactor Water Cleanup High Temp

TS Table 4.2.B for CSCS
- Steam Line High Temp. (HPCI & RCIC)
- Safeguards Area High Temp.
- RCIC Steam Line Low Pressure

The licensee has proposed a 24-month calibration frequency for each of the above PCIS and CSCS trip instrumentation except for RCIC Steam Line Low Pressure CSCS trip instrumentation which is proposed to be a 12-month calibration frequency.

As in section 3.4 above, the licensee has proposed to delineate the RWCU system high temperature instruments by replacing the "Reactor Water Cleanup High Temp" instrument channel with four instrument locations to ensure the appropriate requirements are implemented. Except for the proposed change in calibration frequency the remaining table information with instrument channel "Reactor Water Cleanup High Temp" is unchanged. These four RWCU instrument locations are:

"RWCU Back Wash Receiver Tank Room High Temperature"
"RWCU Heat Exchanger and Pump Rooms High Temperature"
"RWCU Line in RHR [Residual Heat Removal] Valve Room "A" High Temperature"
"RWCU Line Near East CRD [Control Rod Drive] Modules High Temperature"

This delineation of the "Reactor Cleanup System High Temperature" instrument in TS Table 4.2.A into four specific instrument locations, clarifies the location of these instruments. This change is administrative in nature and is acceptable.

The licensee's justification, for the proposed changes in the instrument calibration frequency, addressed each of the seven actions of GL 91-04 as delineated in Section 2.0, "Regulatory Analysis," and included calculations of instrument setpoint uncertainty for the proposed extension of the instrument calibration frequency. The licensee stated that the effect on the total instrument loop uncertainty, due to the decrease in calibration frequency, was included in the calculations that established the new TS trip settings in accordance with methodologies endorsed by RG 1.105. The calculations conclude that sufficient margins exist between the trip level settings and the design basis analytical limit to account for all instrument and process inaccuracies, including decreased calibration frequency. Therefore, the decreased calibration frequency will have no effect on the ability of affected instrumentation to perform its safety function. The licensee further stated that setpoint calculations using the same methodology were submitted to the NRC by letter dated June 7, 1993, to facilitate NRC review and approval of a 24-month fuel cycle for Pilgrim in accordance with GL 91-04. The staff found Pilgrim's method and results acceptable in the NRC's safety evaluation report dated April 6, 1994 (Reference 8).

The staff review of the licensee's submittals indicate that the licensee adequately addressed each of the first five actions of GL 91-04 regarding the instrument drift. In addition, the applicable calculations submitted with the amendment substantiate the licensee's response to those actions. In response to action 6, the licensee stated that the assumptions of the calculations were validated as required by the applicable setpoint calculation procedures. In response to action 7, the licensee stated that Pilgrim commits to a program that consists of monitoring, assessment, and feedback to verify that the instrument performance, including drift, is consistent with the parameters specified in the calculations for those instruments whose surveillance interval is being increased. The licensee will monitor the extended surveillance intervals for three calibration intervals to assess the effects of the decreased calibration interval on the instrument drift and its effect on safety, and to ensure the assumptions in the calculations continue to be valid. If the surveillance test results indicate instrument performance not meeting the surveillance procedure requirements, corrective actions will be taken in accordance with the existing station procedures.

The October 10, 2002, submittal included RWCU system space high temperature PCIS trip setpoint calculation I-N1-115, Revision 0, as a representative calculation for a 24-month instrumentation calibration interval, and RCIC steam line low pressure CSCS trip setpoint calculation I-N1-195, Revision 1, for a 12-month instrument calibration interval. The staff review of both of these calculations indicated that the licensee followed the staff-approved setpoint calculation methodology and assumptions of RG 1.105. The instrument drift data used in the instrument setpoint calculation for the 24-month calibration frequency were the as-left/as-found 30-month calibration frequency results of 103 EGS/Patel temperature switches from another utility that are identical to those used at Pilgrim in a similar application. For a 12-month calibration frequency, the RCIC steam line pressure instrument setpoint drift data used in the instrument setpoint calculation were Pilgrim instrument 3-month calibrations as-left/as-found test results of 8 years. These data were analyzed for a 30-month calibration interval by combining consecutive tests that did not require interim calibration. As the first record after 30 months into the data, the difference between the as-found and as-left data was recorded as one count. The next record maintained the 30-month interval between the as-found and as-left values. If there was a setpoint change, the analysis of the 30-month shift was suspended until another 30-month interval had elapsed since the change. The licensee stated that this method is referred to as the "Sliding Filter Approach," in the Pilgrim plant procedure. The licensee established only 19 counts of the 30-month calibration interval. A minimum of 30 such counts are needed to achieve a 95/95% confidence level for a 30-month calibration interval. The licensee, therefore, requested a 12-month calibration interval for the RCIC steam line low pressure CSCS trip instrumentation.

Because the licensee followed the staff-approved setpoint calculation methodology and assumptions of RG 1.105, the staff finds this request acceptable.

3.11 Additional administrative changes

The following administrative changes were proposed by Pilgrim.

a) Renaming the "Reactor Cleanup System High Flow" (1c and 3b) trip function to "Reactor Water Cleanup System (RWCU) High Flow" in TS Tables 3.2.A and 4.2.A clarifies this instrument's location. This is an administrative or editorial change and has no impact on safety and is, therefore, acceptable.

b) Relocating footnote numbers in TS Table 3.2.B to the “Remarks” column (2i) provide clarity to the table and are administrative changes that do not change any technical requirements and have no impact on safety. Therefore, these changes are acceptable.

c) Removing the column identifying the number of available instrument channels (1e) in TS Table 3.2.A is an administrative change that does not change any technical requirements and has no impact on safety. The table will continue to contain a column of the minimum number of operable channels which is consistent with STS. Therefore, this change is acceptable.

d) Each of the revised TS pages had the word “Revision” with a number after it placed just above the listing of applicable amendment numbers that had changed each of the individual pages. This revision number reflected a licensee change process which will not be used on the pages in the future. The word “Revision” and the number is being deleted. This change is administrative in nature and is acceptable.

The applicable Bases pages were also revised to reflect the TS changes to provide consistency and clarity. The staff has no objection to the changes in the Bases.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Massachusetts State Official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (68 FR 7815). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. Letter from R. M. Bellamy (Entergy) to NRC, “Request for Technical Specification change Concerning Change of Trip Level Settings, Calibration Frequencies, and Editorial Changes, Revision 1,” October 10, 2002.

2. Letter from R. M. Bellamy (Entergy) to NRC, “Supplementary Information in Support of Request for Technical Specification Change Concerning Change of Trip Level Settings, Calibration Frequencies, and Editorial Changes,” dated November 22, 2002.

3. Letter from R. M. Bellamy (Entergy) to NRC, “Request for Technical Specification Change Concerning Change of Trip Level Settings,” dated January 28, 2003.

4. Letter from R. M. Bellamy (Entergy) to NRC, “Request for Technical Specification Change Concerning Change of Trip Level 1 Settings, Calibration Frequencies, and Editorial Changes,” dated December 12, 2001.

5. Generic Letter 91-04 from James G. Partlow, Associate Director for Projects-Office of Nuclear Reactor Regulation-NRC, to All Holders of Operating Licenses or Construction Permits for Nuclear Power Reactors, “Guidance on Preparation of a license Amendment Request for Changes in Surveillance Intervals to accommodate a 24-Month Fuel Cycle,” dated April 2, 1991.

6. Regulatory Guide 1.105, Revision 2, “Setpoints for Safety-Related Instrumentation,” February 1986.

7. 10 CFR 50, Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants.”

8. Letter from R. Eaton (NRC) to E. T. Boulette (PNPS), “Issuance of Amendment No. 151 to Facility Operating License No. DPR-35, Pilgrim Nuclear Power Station,” dated April 6, 1994.

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