



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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August 1, 2007

Mr. Kevin Bronson
Site Vice President
Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, Massachusetts 02360-5508

**SUBJECT: PILGRIM NUCLEAR POWER STATION - NRC PROBLEM IDENTIFICATION
AND RESOLUTION INSPECTION REPORT 05000293/2007006**

Dear Mr. Bronson:

On June 21, 2007, the NRC completed a team inspection at your Pilgrim Nuclear Power Station. The enclosed report documents the inspection findings, which were discussed on June 21, 2007, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations, and the conditions of your operating license. The inspectors reviewed selected procedures and representative records, observed activities, and interviewed personnel.

On the basis of the sample selected for review, the inspection team concluded that Entergy's implementation of the corrective action program at Pilgrim was consistent and generally effective. The team determined that Entergy's staff had a low threshold for identifying problems and issues were prioritized and evaluated commensurate with their safety significance. Corrective actions were typically implemented in a timely manner and addressed the identified causes of problems. Lessons learned from industry operating experience were reviewed and applied when appropriate, and, in most cases, audits and self-assessments were critical with appropriate actions taken to address identified issues.

This report documents one NRC-identified and one self-revealing finding of very low safety significance (Green). Both of these findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they were entered into your corrective action program, the NRC is treating the findings as non-cited violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these non-cited violations, you should provide a response with the basis for your denial within 30 days of the date of this inspection report to the U.S. Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at the Pilgrim Nuclear Power Station.

Mr. K. Bronson

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If you have any questions, please contact me at (610) 337-5209.

Sincerely,

/RA/

Mel Gray, Chief
Technical Support & Assessment Branch
Division of Reactor Projects

Docket No. 50-293
License No. DPR-35
Enclosure: Inspection Report 05000293/2007006
w/Attachment: Supplemental Information

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Mr. K. Bronson

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 50-293

License No: DPR-35

Report No: 05000293/2007006

Licensee: Entergy Nuclear Operations, Inc.

Facility: Pilgrim Nuclear Power Station

Location: 600 Rocky Hill Road
Plymouth, MA 02360

Dates: June 11 - 21, 2007

Team Leader: S. Hansell, Limerick Senior Resident Inspector
Division of Reactor Projects (DRP)

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Approved by: Mel Gray, Chief
Technical Support & Assessment Branch
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000293/2007006; 06/11/2007 - 06/21/2007; Pilgrim Nuclear Power Station; biennial baseline inspection of the identification and resolution of problems.

This team inspection was performed by two senior resident inspectors and two regional inspectors. Two findings of very low safety significance (Green) were identified during this inspection and were classified as non-cited violations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)." Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Overall Assessment of Entergy's Identification and Resolution of Problems

The team determined that Entergy was effective at identifying problems and placing them in the corrective action program (CAP). Once entered into the CAP, these items were screened and prioritized in a timely manner using established criteria, and they were properly evaluated commensurate with their safety significance. The condition review group (CRG) performed thorough discussions of new issues and ensured the issues were classified properly. Overall, the evaluations identified the causes of the problem, assessed the extent of condition, and developed appropriate corrective actions. An exception was noted for the resolution of emergency diesel generator (EDG) load oscillations. There were multiple occurrences of small load oscillations before the problem was identified and corrected; this resulted in a finding. Corrective actions were typically implemented in a timely manner, but the team found that in one case, main steam safety relief valve corrective actions were not timely and did not prevent recurrence; this resulted in a finding. On the basis of interviews conducted during this inspection, workers at the site felt free to input safety findings into the corrective action program. The team found that Entergy's self-assessments and audits were self-critical and consistent with the team's observations.

A. NRC Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A self-revealing Green non-cited violation (NCV) of Technical Specification 5.4.1 was identified for an inadequate procedure used to lubricate the mechanical governor linkages associated with the 'A' emergency diesel generator (EDG). The inadequately lubricated governor linkages caused load oscillations on the 'A' EDG which resulted in a procedurally required EDG shutdown during a monthly operability surveillance test on May 15, 2007. Entergy determined the cause of the oscillations and corrected the problem by cleaning and lubricating the mechanical governor linkages. The maintenance procedure was also revised to provide a more detailed description of the required EDG linkage lubrication task.

This finding is more than minor because it is associated with the Procedure Quality attribute of the Mitigating Systems cornerstone. The issue affected the cornerstone objective of ensuring the reliability and availability of systems that respond to initiating events to prevent undesirable consequences, in that, the 'A' EDG was shutdown and removed from service to perform troubleshooting and repairs to the fuel rack linkages. Following a Phase 1 evaluation, this finding was determined to be of very low safety significance (Green) since the finding did not result in a loss of operability, a loss of system safety function, an actual loss of a single train for greater than its Technical Specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or a severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance, Resources, because Entergy did not provide adequate procedure guidance to personnel to ensure proper lubrication of the 'A' EDG governor linkages. [H.2(c)] (Section 4OA2.a(3)(a))

- Green. The team identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure to take timely or effective corrective action to resolve repetitive safety and relief valve (SRV) surveillance test failures. Specifically, Entergy has not resolved recurring SRV lift setpoint surveillance test failures considering the industry experience that identifies likely causes and recommended corrective actions. Entergy personnel entered this condition into their corrective action program as CR-07-02920. The planned corrective action for this issue is to install a plant modification to independently actuate the SRVs using the Automatic Depressurization System (ADS).

This finding is more than minor because it is associated with the Mitigating Systems cornerstone and effects the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable circumstances. Specifically, the failure to adequately address SRV pilot valve corrosion bonding and setpoint drift in a timely manner, has resulted in repeat non-conservative SRV lift points above Technical Specification limits. Following a Phase 1 evaluation, this finding was determined to be of very low safety significance (Green) since no loss of function has occurred. This finding has a cross-cutting aspect in the area of problem identification and resolution, Corrective Action Program, because Entergy has not taken timely or effective corrective actions to address a safety issue commensurate with its significance and complexity. [P.1(d)] (Section 4OA2.a(3)(b))

B. Licensee-Identified Violations

None.

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

a. Assessment of the Corrective Action Program

(1) Inspection Scope

The team reviewed the procedures describing the CAP at Entergy's Pilgrim Nuclear Power Station. Entergy personnel identify problems by initiating condition reports (CRs) for conditions adverse to quality, plant equipment deficiencies, industrial or radiological safety concerns, or other significant issues. Condition reports are subsequently screened for operability, categorized by significance level (A through D), and assigned to personnel for evaluation and resolution.

The team reviewed items selected from the seven cornerstones of safety in the NRC's Reactor Oversight Program to determine if problems were being properly identified, characterized, and entered into the CAP for evaluation and resolution. The team selected items from the maintenance, operations, engineering, emergency planning, security, radiological control, and oversight programs to ensure that Entergy was appropriately considering problems identified in each area. The team considered risk insights from Entergy's probabilistic risk assessment (PRA) to focus the sample selection and system walkdowns on risk-significant components. The team used this information to select a risk-informed sample of CRs that had been issued since the last NRC Problem Identification and Resolution (PI&R) inspection, which was completed in March 2005.

The team reviewed the corrective actions associated with selected CRs to determine whether the actions addressed the identified causes of the problems. The team reviewed CRs for repetitive problems to determine whether previous corrective actions were effective. The team also reviewed Entergy's timeliness in implementing corrective actions and their effectiveness in precluding recurrence of significant conditions adverse to quality. Furthermore, the team assessed the backlog of corrective actions to determine if any, individually or collectively, represented an increased risk due to delays in implementation. The team also reviewed NCVs issued since the last inspection of Entergy's CAP to determine if issues placed in the program had been properly evaluated and corrected. The team also attended a Corrective Action Review Board meeting.

The team reviewed the CRs listed in the Attachment to this report to assess whether Entergy personnel adequately prioritized and evaluated problems. The team selected the CRs in areas to cover the seven cornerstones of safety in the NRC's Reactor Oversight Program. The team also considered risk insights from Entergy's PRA to focus the inspection sample on the top ten risk-significant systems. The reviews included the appropriateness of the assigned significance level, the timeliness of problem resolution, and the scope and depth of the causal analysis. For significant conditions adverse to quality, the team reviewed Entergy's assessment of the extent of condition and the determination of corrective actions to prevent recurrence. A portion of the items chosen for review was expanded from two years to five years.

Based on a review of NRC and Entergy risk analyses, the team selected two high risk-significant systems, the emergency diesel generators (EDGs) and main steam safety relief valves (SRVs) for detailed review. These systems were selected in part, due to long standing and ongoing performance issues. The team performed an extended five year review of the CAP documents, system health reports, Licensee Event Reports (LERs), work requests, engineering documents, plant log entries, and results from surveillance tests and maintenance tasks. The team interviewed engineering and operations personnel and completed system walkdowns to assess material condition and system performance.

In addition, the team interviewed plant staff and management to determine their understanding of and involvement with the CAP. The team also reviewed NCVs issued since the last inspection of Entergy's CAP to determine if issues placed in the program had been properly evaluated and corrected. The team attended condition review group (CRG) meetings and a Corrective Action Review Board meeting. The specific documents reviewed and referenced during the inspection are listed in the Attachment to this report.

(2) Assessment

Identification of Issues

The team concluded that the station was generally effective at problem identification. Entergy staff had adequate knowledge of the CAP, identified problems, and entered them into the program at an appropriate threshold. There were a few minor deficiencies identified by the team that had not been previously identified by Entergy. Station staff initiated CRs, as appropriate, in response to deficiencies or issues raised by the inspection team. In addition, two minor examples of ineffective corrective actions were noted by the team:

- Pilgrim has installed temporary scaffolding in safety related areas of the plant that has remained in place for longer than expected. The site procedure that controls scaffolding requires operations to periodically review the scaffolding to ensure it is not impacting safety related equipment. The team noted that the Operations reviews were not performed. The team performed a walkdown of selected scaffolding in safety related areas of the plant and did not identify any scaffolding that was built improperly or impacting safety related equipment. Because the installed scaffolding did not impact safety related equipment, the team determined that Entergy's failure to follow the scaffold procedure was a minor violation.
- The team noted that a compensatory action related to maximizing the SRV simmer margin by controlling reactor pressure at 1032 +/- 1 psig was controlled by an informal process. The Engineering Department verbally informed the control room that reactor pressure should be maintained at the pressure control value to ensure proper SRV operation, but Operations did not include the task in a formal procedure or process. The team determined that Entergy's coordination

of reactor pressure related to the SRV's was a minor issue because the informal control did not impact the operability of the SRV's.

Prioritization and Evaluation of Issues

The team concluded that Entergy personnel screened and evaluated problems at the appropriate significance level commensurate with their significance. The staff was effective at performing operability evaluations and reportability determinations for degraded conditions. Additionally, the team determined that the CRG performed thorough discussions related to the classification of issues and determined the appropriate extent of condition scope. The team reviewed several root cause evaluations and found that they were thorough and corrective actions would be reasonably expected to prevent recurrence. An exception was noted for the initial root cause evaluation for the 'A' EDG. The root cause did not determine the cause of the EDG load oscillations even though previous CRs documented degraded roof conditions that could impact the governor linkage operation.

Effectiveness of Corrective Actions

Overall, the team concluded that Entergy developed and implemented corrective actions that were appropriate and effective. Based on the sample reviewed, the team determined that most corrective actions were completed in a timely manner. For significant conditions adverse to quality, corrective actions were identified to prevent recurrence. Corrective actions to address NRC non-cited violations since the last PI&R inspection were timely and effective. Nonetheless, the inspectors identified a NCV because main steam SRV corrective actions were not timely. This issue is discussed in detail in the Findings section of the report. In addition, the following minor example of ineffective corrective actions was noted by the team.

- Two high pressure coolant injection (HPCI) spare flow controllers were sent offsite for repair after the discovery that the controllers were faulty in 2005. At the conclusion of the inspection, the flow controllers were still at the vendor location awaiting clarification between the site and vendor to complete the repair. Because of this issue, Entergy does not have additional spare HPCI flow controllers available onsite in the event that an installed flow controller were to fail and require replacement. The team determined that Entergy's ineffective corrective action for a known problem was a minor issue because the lack of a spare flow controller on site did not result in unplanned out of service time for the HPCI system.

(3) Findings

- (a) Introduction. A Green self-revealing non-cited violation (NCV) of Technical Specification 5.4.1 was identified for Entergy's failure to adequately describe in procedures the lubrication of mechanical governor linkages associated with the 'A' EDG. The inadequately lubricated governor linkages resulted in the unplanned shutdown of the 'A' EDG during a monthly operability surveillance test on May 15, 2007.

Description. On April 6, 2007, during the 'A' EDG monthly surveillance run load oscillations of approximately 180 kilowatt (kW) were observed. In response, a root cause analysis team consisting of Entergy Maintenance, Engineering, and Operations personnel planned and executed a troubleshooting run on April 9, 2007, with added instrumentation installed on the 'A' EDG. Minor kW oscillations were noted and an adjustment of the voltage adjust potentiometer was required due to grid voltage changes. These issues were considered normal and did not identify the cause of kW oscillations. Subsequent runs on April 17 and April 25, 2007, also did not produce abnormal kW oscillations.

On May 15, 2007, the 'A' EDG was started for its monthly surveillance test in accordance with Entergy procedure, 8.9.1, "Emergency Diesel Generator and Associated Bus Surveillance." Scheduled for a 60 minute, 2600 kW loaded run, the 'A' EDG was started and loaded for approximately 45 minutes when erratic, unexpected oscillations in the generator kW load were noted. Oscillations of 300 kW were observed. With load oscillations in excess of the 200 kW shutdown criteria specified in the procedure, control room operators immediately tripped the 'A' EDG and began an investigation.

After the EDG was tripped, Entergy reviewed the data from the two Yokagowa recorders that were installed to further evaluate engine parameters such as electronic governor frequency, engine speed, and fuel rack position. A review of the data showed that the kW oscillations were not being caused by grid frequency changes as previously suspected. The data showed that the fuel rack position changed in advance of any other measured parameter, which indicated that the fuel rack was initiating the kW anomalies. Entergy inspected the fuel rack, particularly the linkages connecting the fuel rack to the mechanical governor (EGB). The inspection found that the spring lever assembly connected to the end of the EGB control shaft rod was coated with a layer of corrosion and debris. Components in the linkages intended to move freely were found to be bound and sticky. Paint and debris were found in pivot points which caused joints and components to adhere to one another. The debris appeared to have come from the interior surface of the roof above the 'A' EDG due to a previously identified leak. Entergy created a work order to disassemble the linkages for cleaning and lubrication. Following the work, the 'A' EDG was run on May 18, 2007, for approximately four hours and no kW oscillations were noted. Again on May 19, 2007, a two hour run of the 'A' EDG was completed with no kW oscillations noted.

Entergy's root cause analysis determined that procedure 3.M.3-61.5, "Emergency Diesel Generator Quarterly Preventive Maintenance," did not provide adequate written direction

to ensure proper lubrication of the 'A' EDG linkages. The step in the procedure intended to perform the lubrication of the linkages did not provide details on how to clean and lubricate all the pivot points and connections. Entergy interviewed selected maintenance technicians and found that they had been inappropriately interpreting the step due to the inadequate detail. As part of the root cause analysis, Entergy personnel generated corrective actions to revise procedures to ensure adequate, detailed instructions would describe the lubrication of the linkages.

Analysis. The team determined that Entergy's failure to adequately describe, in procedures, the lubrication of mechanical governor linkages associated with the 'A' EDG was a performance deficiency. The team determined that the cause of this issue was within Entergy's ability to foresee and prevent, and should have been prevented, had previous root and apparent cause investigations identified and evaluated the material condition of the 'A' EDG.

The team determined that this finding was more than minor because it is associated with the Procedure Quality attribute of the Mitigating Systems cornerstone; and, it affected the cornerstone objective of ensuring the reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, due to inadequate procedure instructions for lubrication, governor linkages were unable to move freely which caused kW oscillations in excess of procedure shutdown criteria, caused unplanned unavailability, and impacted reliability of the 'A' EDG. The team evaluated the significance of this finding using IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," and determined that the finding was of very low safety significance (Green) since the finding did not result in a loss of operability, a loss of system safety function, an actual loss of a single train for greater than its technical specifications (TS) allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or a severe weather initiating event.

This finding has a cross-cutting aspect in the area of human performance, Resources, because Entergy did not provide adequate procedure guidance to personnel to ensure proper lubrication of the 'A' EDG governor linkages. [H.2(c)]

Enforcement. Technical Specification 5.4.1 requires that written procedures shall be established, implemented, and maintained covering activities contained in Regulatory Guide 1.33, Revision 2, Appendix A, 1978 edition. Regulatory Guide 1.33, Revision 2, Appendix A lists written procedures for performing maintenance which can affect the performance of safety-related equipment. Contrary to the above, Entergy failed to provide adequate instructions for lubricating governor linkages which led to the unplanned unavailability and impacted reliability of the 'A' EDG. Because this violation is of very low safety significance and has been entered in Entergy's corrective action program (CR-PNP-2007-2951), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 0500293/2007006-001, Inadequate Maintenance Procedure Results in Repetitive Emergency Diesel Generator Load Oscillations)**

- (b) Introduction. A Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective

Action,” was identified by the inspectors for untimely and ineffective corrective actions associated with repetitive failures of SRV lift setpoint testing. This represented a loss of margin to the Emergency Condition and Faulted Condition ASME Code stress limits and affects the reliable operation of SRVs in response to postulated reactor high pressure events.

Description. The team identified that redundant SRV TS surveillance test limits were exceeded at Pilgrim since the 1990's. The team noted that existing industry knowledge and experience with the cause of SRV's lifting greater than their normal setpoint band provided Entergy with several opportunities to resolve the SRV TS test failures. The following timeline describes the continuing nature of SRV TS surveillance failures at Pilgrim:

- In June 1999, a LER was issued which identified the failure of 3 of 4 SRVs to meet TS surveillance criteria for lift points due to SRV setpoint drift. This LER identified that previous LERs issued in 1991 and 1993 had identified similar test failures due to high SRV opening pressures. The corrective action identified in 1999 was to replace the SRV pilot assemblies with certified spares.
- In June 2001, a LER was issued which identified the failure of 2 of 4 SRVs to meet TS surveillance criteria for lift points due to setpoint drift. The LER identified corrosion bonding as the primary cause. In addition, it was noted that the high SRV opening pressure was a longstanding industry issue. The LER discussed replacement of SRV valve discs with Stellite 21 material as an “Action to Prevent Recurrence.” The team noted that Pilgrim had already replaced the SRV valve discs with Stellite 21 in 1980. As such, the team noted that this action had not prevented recurrence of the SRV failures.
- In October 2001, a supplemental LER to the 1999 LER attributed the cause of the SRV lift failure as Stellite oxidation causing sticking between the pilot disc and seat. The corrective action cited in the LER was to replace the pilot assemblies with certified pilot assemblies (the same action taken in 1999 and 2001). Actions specified to prevent recurrence included further lab testing and removal of leaking pilot valves prior to vessel flood up, which was believed to reduce corrosion bonding.
- In March 2004, a LER was issued which identified the failure of 3 of 4 SRVs to meet TS surveillance criteria for lift points due to setpoint drift. This LER discussed corrosion bonding as the cause and further indicated that the corrosion bonding most likely occurred while the SRVs were in storage awaiting testing. The LER indicated that this has been an industry issue since the early 1980's. The LER also discussed three industry design modifications; replacement of valve discs with Stellite 21, replacement of valve discs with platinum, and installation of additional pressure actuation switches to initiate ADS to lift the SRVs at their design setpoint. Corrective actions in this LER included refurbishing and retesting SRVs removed during refueling outage 14, testing the valves sooner to preclude oxygen and moisture from entering the pilot

valves while in storage, performing microscopic evaluations of the pilot valve disc and seat, and reviewing industry data on Target Rock setpoint drift.

- In July 2005, a LER was issued which identified the failure of 3 of 4 SRVs to meet TS surveillance criteria for lift points due to setpoint drift. The LER discusses corrosion bonding as the cause with poor fitting SRV insulation identified as a contributing cause. The corrective actions identified in this LER included replacing the SRV pilot valves with certified and tested replacements, installing new insulation in the SRVs, and working with industry representatives to evaluate actions and potential modifications to reduce or mitigate setpoint drift.
- During operating cycle 16, engineering personnel determined that the resolution to corrosion bonding and SRV setpoint drift was to install the independent pressure actuation switches to activate ADS to ensure SRVs lifted at their prescribed lift setpoints. The modification was scheduled for the Spring 2007 refueling and maintenance outage. However, due to the unavailability of parts to support the modification, this work was deferred until the Spring 2009 outage. In June 2007, 3 of 4 SRVs failed to meet TS surveillance criteria for lift points due to setpoint drift. Prior to plant startup, the SRV's with non conservative lift setpoints were replaced with SRVs that met TS lift setpoint requirements. A LER will be issued to document this problem.

In summary, Entergy has experienced SRV failures since the 1990's without an effective resolution to the problem. The cause of these failures has been known for approximately 20 years. The industry has proposed corrective action options which have been effective at other BWR sites. In 1995 the NRC recognized the installation of independent pressure actuation switches as a viable corrective action to this SRV issue. However, Entergy did not implement the system change process in time to support installation of the pressure switch modification during the most recent outage and, as such, the vulnerability of the development of corrosion bonding on SRV pilot valve discs and seats will continue for another 2 years. Entergy personnel entered this condition into their corrective action program as CR-07-02920. The planned corrective action for this issue is to install a plant modification to independently actuate the SRVs using the Automatic Depressurization System (ADS).

Analysis. The performance deficiency associated with this issue is the failure to implement timely and effective corrective actions to resolve repetitive failures of SRVs to meet TS surveillance requirements. This issue is more than minor because it is associated with the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable circumstances. Specifically, the failure to adequately address SRV pilot valve corrosion bonding and setpoint drift in a timely manner has resulted in repeat non-conservative SRV lift points above TS limits. This can increase the peak plant pressure reached following events that rely on the SRVs to lift within specified ranges to maintain margin to design pressure or stress limits. A Phase 1 evaluation was performed using IMC 0609, "Significance Determination Process," which determined

that the finding was of very low safety significance (Green) because no loss of function had occurred. Prior to plant startup, the SRV's with non conservative lift setpoints were replaced with SRVs that met TS lift setpoint requirements.

This finding has a cross-cutting aspect in the area of problem identification and resolution, Corrective Action Program, because Entergy has not taken timely or effective corrective actions to address a safety issue commensurate with its significance and complexity. [P.1(d)]

Enforcement. Title 10 of the CFR, Part 50, Appendix B, Criterion XVI, "Corrective Action" requires, in part, that conditions adverse to quality, such as TS surveillance failures, are promptly identified and corrected. Furthermore, in the case of significant conditions adverse to quality, the measures will assure that the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to this requirement, Entergy did not take timely or effective corrective actions to address repetitive SRV failures. As a result, the vulnerability to the cause of this condition will continue into 2009. This issue was determined to be of very low safety significance (Green) and has been entered into Entergy's corrective action program as CR-PNP-2007-02920. This issue is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy. **(NCV 0500293/2007006-002, Failure to Take Effective Corrective Actions to Correct Recurring SRV Surveillance Failures)**

b. Assessment of the Use of Operating Experience

(1) Inspection Scope

The team reviewed a sample of operating experience (OE) issues determined to be applicable to Pilgrim station. The sample included focused reviews of Target Rock SRV setpoint drift and HPCI flow controller oscillation issues. The team interviewed personnel responsible for the implementation of the OE Program to determine their familiarity with the program objectives of identifying and transferring OE from industry sources to Pilgrim station. The team reviewed the procedures used for evaluating and initiating action for those items determined to have a potential adverse impact on the safety and reliability of Pilgrim station. The team reviewed selected documents to ensure that problems associated with each issue were considered for resolution in accordance with the corrective action process. A list of the specific documents reviewed is included in the Attachment.

(2) Assessment

The team found that Entergy's use of OE was generally timely and effective. The team found that OE information was appropriately considered for applicability, and corrective and preventive actions were taken, as needed. An exception was noted for the repetitive SRV high pressure lift setpoint issue. As a contributing cause, Entergy did not effectively utilize OE to resolve the issue in a timely manner as described in the Findings section. Operating experience information was integrated into routine activities, such as daily-shift and pre-job briefs, procedures, and training material.

(3) Findings

No findings of significance were identified.

c. Assessment of Self-Assessments and Audits

(1) Inspection Scope

The team reviewed a sample of Entergy's audits and self-assessments, including a 2006 audit of the CAP and the 2006 Entergy Nuclear Safety Culture Assessment. In addition, the team interviewed the Quality Assurance (QA) personnel to determine their assessment of the CAP and to discuss the content and depth of QA audits. This review was performed to determine if problems identified through these evaluations were entered into the CAP, and whether the corrective actions were properly completed to resolve the deficiencies. The effectiveness of the audits and self-assessments was evaluated by comparing audit and self-assessment results against self-revealing and NRC-identified findings and observations during the inspection.

(2) Assessment

The team found that self-assessments and audits were self-critical and generally consistent with the team's observations. The issues were entered into the CAP and addressed appropriately. The results of the 2006 Entergy Nuclear Safety Culture Assessment Report identified some areas for improvement at the station, which were entered into the CAP. The team did not identify any results that were inconsistent with Entergy's conclusions.

(3) Findings

No findings of significance were identified.

d. Assessment of Safety Conscious Work Environment

(1) Inspection Scope

The team reviewed anonymous condition reports from 2005 and 2006 and interviewed various plant personnel to develop a general perspective of the safety-conscious work environment (SCWE). The review was focused on whether employees were willing or reluctant to raise safety concerns. Additionally, the team reviewed Entergy's Employee Concerns Program (ECP) to evaluate if employees were aware of the program and had used it to raise concerns. The ECP review included all issues entered into the system in 2006 and 2007.

(2) Assessment

The team determined that individuals were aware of the importance of nuclear safety, stated a willingness to raise safety issues, and had an adequate knowledge of the CAP and ECP. On the basis of interviews conducted during this inspection, workers at the site felt free to input safety findings into the corrective action program. Personnel used the CAP including anonymous CRs, ECP, and other available methods to raise potential safety concerns.

(3) Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

On June 21, 2007, the team presented the inspection results to Mr. Kevin Bronson, Pilgrim Site Vice President, and other members of the staff, who acknowledged the findings. The inspectors confirmed that no proprietary information reviewed during inspection was retained by the team.

ATTACHMENT: SUPPLEMENTAL INFORMATION

In addition to the documentation that the inspectors reviewed (listed in the Attachment), copies of information requests given to Pilgrim personnel are in ADAMS under accession number ML072070307.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel:

W. Corbo	Mechanical Superintendent
R. Smith	General Manager, Pilgrim
B. Ford	Licensing Manager
S. Hudson	Maintenance Rule Coordinator
J. Keyes	Corrective Action and Assessment Manager
W. Lobo	Licensing Engineer
M. Gastlick	Licensing Engineer
F. Marcussen	Security Manager
F. Mulcahy	HPCI System Engineer
D. Noyes	Operations Manager
P. McNulty	Radiation Protection Manager
D. Rydman	RHR System Engineer
N. Santiago	Employee Concerns Coordinator
T. Sowdon	Emergency Planning Superintendent
T. Collis	System Engineering
B. Sullivan	Design Engineering
A. Owens	Facilities Maintenance
S. Wohlman	System Engineering
M. Santiago	Operations Training Superintendent
V. Fallacara	Training and Development Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000293/2007006-01	NCV	Inadequate Maintenance Procedure Results in Repetitive Emergency Diesel Generator Load Oscillations. (Section 4OA2.a(3)(a))
05000293/2007006-02	NCV	Failure to Take Effective Corrective Actions to Correct Recurring SRV Surveillance Failures. (Section 4OA2.a(3)(b))

LIST OF DOCUMENTS REVIEWED

Procedures

EN-LI -102 Corrective Action Process, Revision 9
EN-LI -119 Apparent Cause Evaluation (ACE) Process, Revision 6
EN-LI-111 Operational Decision-making Issue (ODMI) Process, Revision 2
EN-LI-118 Root Cause Analysis Process, Revision 6
EN-OP-104 Operability Determinations, Revision 2
EN-EC-100 Guidelines for Implementation of the Employee Concerns Program, Revision 1
8.9.1, EDG and Associated Bus Surveillance, Revision 106
8.9.1.2, Diesel Air Start and Turbo Assist System Leak Test, Revision 14
8.9.8.1, A 125 VDC Battery Acceptance Performance or Service Test, Revision
2.4.A.23, Loss/Degradation of 23kV Line, Revision 8
2.2.146, Station Blackout Diesel Generator, Revision 39
2.4.16, Distribution Alignment Electrical System Malfunction, Revision 34
8.Q.3-2, RHR/Core Spray Pump Motor Preventive Maintenance, Revision 20
3.M.3-61.6, Blackout Diesel Generator General and Preventive Maintenance, Revision 14
1.5.15, Seismic Evaluation and Administrative Control of Scaffolding, Revision 16
2.2.21 High Pressure Coolant Injection System, Revision 72
8.5.4.1 HPCI System Pump and Valve Quarterly Operability, Revisions 72 and 75
8.E.23.1 HPCI Turbine Speed Control System Calibration, Revision 65
OT-2, Revision 6 Operations Training Division Work Instruction, "Preparing For Lort Training Sessions"
Pilgrim Training Standards
EOP-02, RPV Control, Failure to Scram
8.C.42 Subcompartment Barrier Control Surveillance, Revision 21

Audits and Self-Assessments

2006 Nuclear Safety Culture Assessment
PNP-LO-2007-0030, Corrective Action Program (March 12 to 23, 2007)
PNP-LO-2005-00110, Supervisor Effectiveness in the Maintenance Department, 01/01/2005
PNP-LO-2005-00018, Maintenance Rule, 01/01/2005
QA-16-2005-PNP-01 Quality Assurance Audit Report - Security
QS-2006-PNP-006 Surveillance Report
QA-01-2005-PNP-01 & -02 Quality Assurance Audit Report
O2C-PNPS-2006-0134; -0176; -0191 Oversight Observation Checklist
PNP-LO-2005-00061 PNPS Security Work Hour Controls Self-Assessment
- Discrepancies with Training Files
Security Weapons Maintenance Snapshot Assessment
PNPS 2006 End-of-Cycle Plant Safety Performance Summary
Nuclear Quality Assurance Management Evaluation (July 31- August 3, 2006)

Condition Reports

2007-0053	2006-4137	2005-2704	2005-2704	2005-2561
2005-2741	2006-3640	2005-2705	2005-0256	2005-3750
2005-2620	2007-3025	2006-4448	2005-0392	2005-3506
2006-4667	2005-3126	2006-4459	2005-1285	2007-0056
2004-3892	2006-4597	2007-0084	2005-1177	2007-2938
2005-0175	2006-3629	2005-3973	2007-2583	2007-2951
2005-3482	2006-3701	2006-1947	2006-3211	2007-2965
2005-3818	2007-1130	2006-3413	2007-1115	2007-2994
2005-3532	2007-1927	2007-0277	2006-2209	2007-2998
2005-4056	2007-0050	2007-0252	2006-2261	2007-3019
2005-03258	2007-1086	2007-0224	2005-3933	2007-3031
2005-00460	2007-0437	2007-1363	2007-0404	2007-0040
2005-03531	2007-1209	2006-1873	2006-4328	2005-5318
2005-03800	2007-1084	2007-2259	2005-3725	2005-2507
2005-02535	2007-1383	2005-0972	2005-1376	2006-4443
2005-01707	2007-2875	2006-1229	2004-3512	2005-2560
2005-03769	2007-0120	2007-0399	2006-2288	2005-2518
2005-04583	2007-2627	2005-1682	2007-1229	2005-5318
2006-00683	2007-2628	2006-3184	2007-1617	2007-2892
2006-03494	2007-0703	2005-5196	2005-4643	2005-4138
2006-03599	2007-2583	2005-4729	2005-1308	2005-0517
2006-03964	2006-3905	2006-3834	2007-2574	2005-2605
2006-03987	2005-3499	2007-0217	2005-2494	2005-2908
2006-03878	2005-3725	2006-2486	2005-2034	
2006-03999	2005-3643	2006-0495	2005-1327	
2006-3777	2007-1458	2004-0624	2005-3983	
2006-3681	2006-2122	2005-2703	2005-3749	

NRC Non-Cited Violations

0500293/2005002-003	0500293/2006006-002
0500293/2005005-001	0500293/2005002-001
0500293/2005004-001	0500293/2007002-001
0500293/2005006-001	0500293/2006002-001

Operating Experience Documents

EN-OE-100 Operating Experience Program, Revision 2
 GE Services Information Letter (SIL) No. 196, Supplement 16, Revision 1, Category 13,
 Target Rock SRV Insulation Maintenance
 GE Services Information Letter (SIL) No. 351, Revision 2, HPCI and RCIC Turbine Control
 System Calibration

Maintenance Requests

MR06118171	MR07101117	MR06108853
MR05117913	MR06111348	MR06109253
MR06112215	MR06112226	MR06108990
MR06117703	MR05118700	PM05110236
MR07101335	MR05112179	
MR07101255	MR06102000	

Engineering Requests

06118401

System Health Reports

High Pressure Coolant Injection 2004 through 2006
 Emergency Diesel Generators and Fuel Storage, 2nd Quarter 2003 through 3rd Quarter 2006
 Main Steam System Health Reports, 2nd Quarter 2003 through 3rd Quarter 2006

Miscellaneous

M-209, "P&ID Condensate & Demineralized Water Storage and Transfer Systems"
 CGI- 328, "Commercial Grade Item BAG & GAS Valve Assembly Kit for SBLC Accumulators T-223A & B"
 Evaluation- 328, "Engineering evaluation of replacement bladder for SBLC accumulators,"
 Revision 4
 NRC Inspection Reports 2005-002, 2005-003, 2005-004, 2005-005, 2006-002, 2006-003,
 2006-004, and 2006-005
 Drawing 2427-2-2, Revision E2, Assembly Drawing Main Steam Safety Valve
 10 CFR 50.72, Immediate Notification Requirements for Operating Nuclear Power Reactors
 10 CFR 50.73, Licensee Event Report System
 Southwest Research Institute (SWRI) Report 18.18020.01.181, Revision 1.0, Examination
 of SRV Pilot Assembly Components (Cooper)
 SWRI Report 18.18036.01.155, Evaluation of Pilot Discs and Seats from Target Rock
 Model 7567F Pilot Valves Serial Numbers 1207 and 1025 (Pilgrim)
 PNPS Safety Relief Valves In-Brief Presentation
 PNPS FSAR 4.4, Nuclear System Pressure Relief System
 Regulatory Issue Summary (RIS) 00-012, Resolution of Generic Safety Issue B-55, "Improved
 Reliability Target Rock Safety Relief Valves"
 Technical Specification (TS) 3/4.6.D, Safety and Relief Valves
 NEDE-24011-P-A-15-US, 5.3 Vessel Pressure ASME Code Compliance Model
 Licensee Event Report (LER) 99-004-00, "Setpoint of Target Rock Relief Valves Found Out
 of Tolerance During Testing"
 LER 2001-004-00, "Target Rock Relief Valves' Test Pressures Exceed Technical Specification
 Limit"
 LER 99-004-01, "Setpoint of Target Rock Relief Valves Found Out of Tolerance Due to
 Stellite Oxidation and Setpoint Drift"

LER 2004-001-00, "Target Rock Relief Valves' Test Pressures Exceed Technical Specification Tolerance Limit"
 LER 2004-003-00, "Target Rock Relief Valves' Test Pressures Exceeding Technical Specification Tolerance Limit"
 LER 2005-003-00, "Target Rock Relief Valves' Test Pressures Exceed Technical Specification Tolerance Limit"
 Main Steam SRV (a)(1) Action Plan
 Compensatory Actions per Compensatory Measures and Disabled Annunciator Logs dated 6/7/2007 and 6/13/2007
 Reactor Pressure Plots from June 2006 thru June 2007
 PNPS FSAR 4.2, Reactor Vessel and Appurtenances Mechanical Design
 General Electric (GE) Report NEDE-30476, DRF B21-00231, Class III dated February 1984, Setpoint Drift Investigation of Target Rock Two Stage Safety/Relief Valve
 CR-PNP-2004-00143, Revision 1, Root Cause Report
 CR-PNP-2004-03047, Root Cause Report
 CR-PNP-2004-1368, Root Cause Report
 June 2007 SRV and SV Test Results
 TS 3.13, Inservice Code Testing
 NRC Letter dated October 24, 1995, "General Electric Topical Report NEDC-32121P, "Pressure Switch Transmitter for Two-Stage Target Rock/Relief Valve; August 1995"

LIST OF ACRONYMS

ADAMS	Agencywide Document Management System
ADS	automatic depressurization system
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
CRG	condition review group
ECP	employee concerns program
EDG	emergency diesel generator
EGB	mechanical governor
HPCI	high pressure coolant injection
kW	kilowatt
IMC	inspection manual chapter
LER	licensee event report
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
OA	other activities
OE	operating experience
PARS	Publically Available Records
PI&R	problem identification and resolution
PRA	probabilistic risk assessment
QA	quality assurance
RHR	residual heat removal
SCWE	safety-conscious work environment
SDP	significance determination process
SRV	safety relief valve
TS	technical specifications