

July 16, 2004

Mr. Michael A. Balduzzi  
Site Vice President  
Entergy Nuclear Operations, Inc.  
Pilgrim Nuclear Power Station  
600 Rocky Hill Road  
Plymouth, MA 02360-5508

SUBJECT: PILGRIM NUCLEAR POWER STATION - NRC INTEGRATED INSPECTION  
REPORT 05000293/2004004

Dear Mr. Balduzzi:

On June 30, 2004, the US Nuclear Regulatory Commission (NRC) completed an inspection at the Pilgrim reactor facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 1, 2004 with Mr. S. Bethay and members of your staff.

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

The report documents one finding of very low safety significance (Green), which involved a violation of NRC requirements. However, because of the very low safety significance and because the issue has been entered into your corrective action program, the NRC is treating the issue as a non-cited violation (NCV), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. Additionally, one licensee-identified violation which was determined to be of very low safety significance is listed in Section 4OA7 of this report. If you contest any NCV in this report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the 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, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Pilgrim.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosures, will be available electronically for public inspection in the NRC Public Document

Mr. Michael A. Balduzzi

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Sincerely,

*/RA/*

Clifford Anderson, Chief  
Projects Branch 5  
Division of Reactor Projects

Docket No. 50-293  
License No. DPR-35

Enclosure: Inspection Report 05000293/2004004  
w/Attachment: Supplemental Information

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Mr. Michael A. Balduzzi

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 50-293

License No: DPR-35

Report No: 05000293/2004004

Licensee: Entergy Nuclear Operations, Inc.

Facility: Pilgrim Nuclear Power Station

Location: 600 Rocky Hill Road  
Plymouth, MA 02360

Inspection Period: April 1, 2004 - June 30, 2004

Inspectors: W. Raymond, Senior Resident Inspector  
D. Florek, Senior Project Engineer  
C. Welch, Resident Inspector

Approved By: Clifford Anderson, Chief  
Projects Branch 5  
Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

IR 05000293/2004004; on 04/012004 - 06/30/2004, Pilgrim Nuclear Power Station; Maintenance and Risk Assessment and Emergent Work Control.

The report covered a 13-week period of inspection by resident inspectors and a senior project engineer. One Green non-cited violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, July 2000.

### A. NRC-Identified and Self-Revealing Findings

#### Cornerstone: Mitigating Systems

Green. A very low safety significance self-revealing non-cited violation (NCV) of 10 CFR 50 Criterion XVI was identified because Entergy did not promptly identify a condition adverse to quality. Specifically, Entergy performed a limited review of Bussmann fuse problems in the industry and at Pilgrim station following failed 125 vdc Bussmann control power fuses that impacted the HPCI system components in July 2002 and October 2003. As a result, Entergy did not assure that faulty Bussmann fuses would not be used in safety related systems at Pilgrim and did not identify, prior to February 2004, that the industry reported manufacturing problems with Bussmann fuses. The HPCI system was found inoperable on February 26, 2004, due to a faulty Bussmann fuse in the control power circuit for the HPCI gland seal condensate pump.

The finding is greater than minor since it is associated with Mitigating System Equipment and because it affected the associated cornerstone objective. The finding had very low safety significance when evaluated in a significance determination process (SDP) Phase 2 analysis, which determined that for the individual system failures when HPCI operability was impacted, the inoperability lasted less than 3 days which was much less than the technical specification allowed outage time of 14 days.

A contributing cause of this finding is related to the cross cutting area of problem identification and resolution. Entergy did not adequately take corrective actions in response to industry operating experience to preclude the recurrence of a significant condition adverse to quality associated with Bussmann fuses. (1R13)

### B. Licensee Identified Violations

A violation of very low safety significance, which was identified by Entergy, has been reviewed by the inspector. Corrective actions taken or planned by Entergy have been entered into Entergy's corrective action program. This violation and corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Pilgrim Nuclear Power Station operated during the period at 100 percent (%) core thermal power, except for short periods of planned operation at reduced power for routine testing and maintenance. On June 3, 2004, the operators reduced plant load to 50% full power to clean the main condenser. Operation at full power resumed on June 4, 2004.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R04 Equipment Alignment (71111.04)

##### a. Inspection Scope (4 samples)

Partial System Walkdowns (71111.04Q). The inspector completed a partial review of risk significant plant systems during periods when the redundant system was out of service for scheduled preventive maintenance and testing. The inspectors reviewed plant procedures, system drawings and valve line-up procedures to walkdown and verify the correct system lineup. The Updated Final Safety Analysis Report and the Technical Specifications were reviewed to ascertain the required system configuration. The references used for this review are described in the attachment to this report. This inspection activity represented four samples.

- B Loop Residual Heat Removal System during A Loop Testing on 4/23/04
- B Emergency Diesel Generator (EDG) System during overhaul of the A EDG on 5/11/04
- Offsite Electrical system Alignment, Station Blackout and B Emergency Diesel Generators during A EDG maintenance on 5/12/04, and A EDG return To service on 5/13/04
- Reactor core isolation cooling system lineup during high pressure coolant injection testing and return to service on 5/25/4

##### b. Findings

No findings of significance were identified.

#### 1R05 Fire Protection (71111.05)

##### a. Inspection Scope (10 samples)

Quarterly Fire Protection Inspection (71111.05Q). The inspector toured selective areas of the plant to observe conditions related to: (1) transient combustibles and ignition sources; (2) the material condition and readiness of fire protection systems and equipment; and (3) the condition and status of readiness of fire barriers used to prevent fire damage or fire propagation. The inspector verified that any identified degraded conditions were compensated by compensatory measures until appropriate corrective

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actions could be taken. The inspector also reviewed the applicable fire hazard analysis fire zone data sheets and selective surveillance procedures to ensure that the specified fire suppression systems surveillance criteria were met. This inspection activity represented 10 samples.

- Fire Zone 1.6 CRD Pump Quadrant
- Fire Zone 1.8 CRD Pump Quadrant Mezzanine Level
- Station Blackout Diesel Generator Building
- Fire Zone 5.4 Diesel Fire Pump Room
- Fire Zone 1.2 B Residual Heat System Removal Quadrant
- Fire Zone 1.9A, A Residual Heat Removal Valve Room
- Fire Zones 1.11& 1.12, Reactor Building/EI 51 ft for RBCCW Cable Protection
- Fire Zone 1.21, A RBCCW Pumps and Heat Exchanger Room
- Fire Zone 1.22, B RBCCW Pumps and Heat Exchanger Room

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample)

Internal Flooding. The inspector walkdown selected areas of the reactor building and auxiliary bay to assess the effectiveness of internal flood protection measures for the reactor building component cooling water system, the high pressure core injection system, and the residual heat removal system. Items selected for review during the walkdowns included watertight piping penetrations, watertight doors, floor level alarms, and floor sump systems. Passive equipment such as curbing and drains were inspected as well as the troughs and gratings in the auxiliary bay floor, which discharge into the torus room via a water seal. The isolation boundaries established to support opening the turbine building component cooling water heat exchanger for maintenance were also verified. The inspector compared Entergy's procedure controls with those described in the internal flood analysis in the Updated Final Safety Analysis Report Section 10.7.6. A sample of condition reports was reviewed to ensure that Entergy was identifying issues related to internal flooding and taking appropriate corrective actions. The references used for this review are described in the attachment to this report.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A)a. Inspection Scope (1 sample)

The inspector reviewed performance testing and preventive maintenance (PM) records for the reactor building closed cooling water (RBCCW) and the turbine building closed cooling water (TBCCW) heat exchangers to verify that the performance monitoring techniques used to ensure heat removal capabilities were acceptable. The inspector verified that the weekly test results for the month of May 2004 were compared against established acceptance criteria; the performance monitoring considered the differences between plant conditions and design conditions; the frequency of testing and inspections was sufficient; and, that Entergy had a program for bio-fouling control. The inspector verified that the results were evaluated to ensure proper heat exchanger operation, and discrepancies were evaluated and corrected. The documents listed in the attachment were used for this inspection.

The inspector also reviewed a sample of corrective action condition reports related to the selected equipment to verify that identified problems were appropriately resolved. The inspector conducted a walkdown of the heat exchanger to assess material conditions and observed maintenance activities during the outage to clean, inspect and repair the TBCCW heat exchanger.

The inspector verified that Entergy's program was adequate to ensure proper heat exchanger performance for the reactor building and turbine building closed cooling water heat exchangers. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)a. Inspection Scope (2 samples)

The inspector observed the performance of a staff crew during a simulator exam on May 3, 2004. The exam was conducted per Scenario SES-008 as part of licensed operator requalification program module O-RQ-06-02-94(12). The scenario involved operational transients and design basis events. The inspector verified that the crew met the training scenario objectives and performed the critical tasks. The inspector verified proper use of the system operating procedures and emergency operating procedures. The inspector observed actions to implement the emergency plan and to make event classifications and notifications. The inspector also verified that the post-scenario critique discussed any relevant lessons learned and that discrepancies were discussed with the crew to enhance future performance. The inspector observed the use of industry operating experience, and the consistency between the simulator, plant design analyses and the plant control room. The inspector reviewed Entergy's actions to

address training related deficiencies (reference Condition Reports 200401245, 1376). This inspection activity represented one sample.

The inspector observed an operating crew's performance during the remediation simulator exam on May 13, 2004. This exam, conducted per Scenario SES-057B, was a part of licensed operator requalification training and involved operational transients and design basis events. The inspector verified that the crew performed the critical tasks and met the training scenario objectives. The inspector verified proper use of the system operating and emergency operating procedures. The inspector observed the crews' actions to implement the emergency plan for event classifications and notifications. The inspector also verified that the post-scenario critique discussed relevant lessons learned and that discrepancies were discussed with the crew to enhance future performance. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule (71111.12)

a. Inspection Scope (1 sample)

The inspector reviewed the follow-up actions for selected system, structure, or component (SSC) issues and reviewed the performance history of these SSCs to assess the effectiveness of PNPS's maintenance activities. The inspector reviewed PNPS's problem identification and resolution actions for these issues in accordance with PNPS's procedures and the requirements of 10 CFR 50.65(a)(1) and (a)(2), "Requirements for Monitoring the Effectiveness of Maintenance." In addition, the inspector reviewed selected SSC classification, performance criteria and goals, the system health reports, and the corrective actions that were taken or planned to verify whether the actions were reasonable and appropriate. The inspector attended meetings and reviewed Entergy's plans to address the systems in maintenance rule a(1) status. This inspection activity represented one sample.

- Proper classification of equipment issues for the 345KV system as part of the offsite distribution system. The inspector reviewed Entergy's actions and evaluations regarding the T901 disconnect. The references used during this review are listed in the attachment to this report. The inspector reviewed Entergy's basis for placing the 345 KV system in maintenance rule a(2) status.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope (6 samples)

The inspector evaluated on-line risk management for planned and emergent work. The inspector reviewed maintenance risk evaluations, work schedules, recent corrective actions, and control room logs to verify that other concurrent planned and emergent maintenance or surveillance activities did not adversely effect the plant risk already incurred with the out of service components. The inspector verified that Entergy took the necessary steps to control work activities, took actions to minimize the probability of initiating events and maintained the functional capability of mitigating systems. The inspector assessed Pilgrim's risk management actions during plant walkdowns. The inspector also discussed the risk management with maintenance, engineering and operations personnel as applicable for the activities. Other references used for the inspection are identified in the attachment to this report. The inspection covered the following 6 samples:

- Emergent maintenance activities on April 23, 2004 per MR04106146 for primary containment isolation valve Agastat relays (Condition Report 200401224).
- Corrective maintenance on May 6, 2004 per P9700888 and P9700889 for containment vent isolation valve Agastat Relays.
- Planned maintenance activities on the A EDG the week of May 10, 2004.
- Planned maintenance activities on off-site power line 342 on May 17, 2004.
- Planned surveillance testing of the high pressure coolant injection (HPCI) System on May 26, 2004, which placed the plant in an elevated Risk condition (Yellow).
- Followup to Emergent work on the HPCI Gland Seal Condensate Pump P-220 on February 26 per MR 04102939.

The inspector reviewed Entergy's actions to restore the HPCI system to an operable status on February 26, 2004, following the discovery of a failed 125 vdc control power fuse during a maintenance run. The inspectors reviewed condition reports (CRs) 200400624, 200210824 and 200304008 that documented this and similar events in the corrective action program. The inspector reviewed the above CRs to verify that Entergy identified the cause of the conditions affecting the HPCI system and identified reasonable corrective actions. The inspector reviewed the event notification in accordance with 10 CFR 50.72(b)(3)(v)(A) (reference Event 40547 and LER 2004-002).

b. Findings

Introduction. A very low safety significance (Green) self-revealing non-cited violation (NCV) of 10 CFR 50 Criterion XVI was identified because Entergy did not promptly identify a condition adverse to quality. Specifically, Entergy performed a limited review of Bussmann fuse problems in the industry and at Pilgrim station following failed 125 vdc Bussmann control power fuses that impacted the HPCI system components in July 2002 and October 2003. As a result, Entergy did not assure that faulty Bussmann fuses would not be used in safety related systems at Pilgrim and did not identify, prior to February 2004, that the industry reported manufacturing problems with Bussmann fuses. The HPCI system was found inoperable on February 26, 2004, due to a faulty Bussmann fuse in the control power circuit for the HPCI gland seal condensate pump.

Description. On February 26, 2004, Entergy discovered a blown control power fuse on the HPCI gland seal condensate (GSC) pump P-220, which made the HPCI system inoperable until the fuse was replaced. At the time of discovery, the plant was in day 1 of a planned HPCI maintenance outage with a 14-day AOT. P-220 initially operated properly during the maintenance run and the fuse blew some time during or after the run. The equipment failure analysis for the February 2004 event found that the fusible link remained intact, but the fuses had failed mechanically internally. The fuse lost continuity because of a cold solder connection where the fusible link was attached to the end cap (ferrule).

Further review determined that the same failure mode caused fuses to fail in the HPCI system in July 2002 and October 2003. Specifically, the control power for HPCI injection valve MO-2301-8 failed on July 7, 2002, causing HPCI to be inoperable for several hours (LER 2002-01); and, the control power for HPCI vacuum relief valve MO-2301-33 failed on October 25, 2003, causing the HPCI turbine exhaust vacuum breaker / containment isolation valve to be inoperable for several hours.

Entergy had performed a limited review and equipment failure analysis of fuse problems following the July 2002 and October 2003 events, and concluded the fuse events were "random" failures. A more complete review following the February 2004 event determined the failed Bussmann KWN fuses at Pilgrim have known manufacturing problems going back to 1993 and there were several pre-1995 Operating Experience and Part 21 reports describing the problems.

Following the February 2004 event, Entergy took actions to place a "hold" on the Bussmann fuses, control their issue, and to reorder spare fuses. Entergy inspected lots of about 350 fuses in the Pilgrim warehouse and a supply maintained in the main control room. Three additional failed fuses were identified from the warehouse stock, and another recent (February 4, 2004) fuse failure affecting a non-safety related component (MR 04101880) was a Bussmann KWN fuse with a similar failure mode. All failed Bussmann KWN fuses at Pilgrim were manufactured prior to 1993. Engineering personnel began a review to identify and replace susceptible Bussmann KWN fuses still installed in the plant.

Analysis. The performance deficiency is that in July 2002 and October 2003, Entergy did not perform an adequate assessment as required by Pilgrim procedures ENN-LI-102, "Corrective Action Process," and 1.3.121.3, "Supplemental Guidance for Implementing the PNPS Corrective Action Program," following the identification of defective fuses in HPCI system components. The corrective actions from these occurrences did not consider industry operating experience and address the extent of condition. Entergy did not perform an adequate evaluation or extent of condition review for the July 2002 event (did not recognize industry OE) and did not perform an adequate review for October 2003 event (did not recognize industry OE nor the internal July 2002 OE). This was a missed opportunity for more timely identification of an adverse trend and to initiate corrective actions.

The finding is greater than minor since it is associated with the equipment performance attribute of the Mitigating System cornerstone and adversely affected the cornerstone objective. Entergy did not adequately review external OE, internal OE and properly perform equipment failure analyses, resulted in the HPCI system being inoperable on three occasions (specifically, on July 7, 2002, on October 25, 2003, and February 26, 2004).

In accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Findings for At-Power Situations," the inspector conducted a significance determination process (SDP) Phase 2 analysis and determined that the individual system failures screened to a Green finding because, when HPCI operability was impacted, the inoperability lasted less than 3 days which was much less than the TS allowed outage time of 14 days. The actual out of service time for each event was less than one 12-hour shift. The Region I Senior Reactor Analyst (SRA) was consulted to evaluate the impact of a potential common cause failure mechanism involving multiple events involving faulty fuses (3 impacting HPCI in the last 18 months). This review determined that the SDP Phase 2 results adequately characterized the risk significance.

A contributing cause of this finding is related to the cross cutting area of problem identification and resolution. Entergy did not adequately take corrective actions in response to industry operating experience to identify a significant condition adverse to quality associated with Bussmann fuses.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, requires that measures be established to assure that significant conditions adverse to quality be promptly identified and corrected. Pilgrim procedures ENN-LI-102, "Corrective Action Process," and 1.3.121.3, "Supplemental Guidance for Implementing the PNPS Corrective Action Program," requires that conditions adverse to quality be reviewed and evaluated, and that corrective actions be taken to preclude repetition. The corrective actions should consider industry operating experience and address the extent of condition. Contrary to the above, following the identification that failed control power Bussmann fuses had affected components in the HPCI system (MO-2301-8 in July 2002 and MO-2301-33 in October 2003, respectively), Entergy performed an inadequate equipment failure analysis, an inadequate assessment of potentially similar conditions, and an inadequate review of internal and external operating experience. In particular, Entergy's review of the October 2003 Bussmann fuse failure did not consider the July 2002 Bussmann fuse failure. As a result, Entergy did not identify that potentially faulty Bussmann fuses were being installed in Pilgrim safety systems, and did not take timely corrective actions to preclude repetition of Bussmann fuse failures adversely affecting HPCI operability.

Because the finding is of very low safety significance and has been entered into Entergy's Corrective Actions Program (CR 20040624), this violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy **(NCV 0500293/2004004-001)**.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14)

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a. Inspection Scope (2 samples)

The inspector assessed the control room operator performance during the following unplanned non-routine evolution. This inspection activity represented two samples.

- the unplanned loss of the B control rod drive (CRD) pump on May 18, 2004, after the pump casing drain line failed and sprayed condensate storage tank water into the room. The operators responded by securing the B CRD pump, starting the A CRD pump, and increasing the CRD quadrant area cooling to restore nominal temperature and humidity conditions.
- the plant power reduction to 50% full power on June 4 per procedure 2.1.14 to perform a thermal backwash on the main condenser.

The inspector evaluated personnel performance in responding to the event (i.e., adequacy of personnel performance, procedure compliance, use of the corrective action process, etc.) against the requirements and expectations contained in technical specification and station procedures ARP 904L-C7, 2.2.4, 2.2.87 and EOP-4. The references used in the review are described in the attachment to this report.

The inspector toured the CRD quadrant and the main control room, evaluated the initiating causes and symptoms of the event to determine if personnel error contributed to the event, and reviewed main control room logs and indicators and plant computer data to ensure plant systems responded as expected. The inspector verified there was no impact on safe reactor operation and no adverse impact on plant safety systems. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (5 samples)

The inspector reviewed selected operability determinations to assess the adequacy of the evaluations, the use and control of compensatory measures, compliance with the technical specifications, and the risk significance of the issues. The inspector used the technical specifications, Final Safety Analysis Report, associated Design Basis Documents and PNPS Procedures 1.3.34.5, "Operability Evaluations," and ENN-OP-104, "Operability Determinations," as references. This review covered 5 inspection samples.

- Operability Evaluations for CR 200401224 (4/23/4) and 200401290 (4/28/4) for primary containment isolation valve Agastat relays (MR04106146)
- Operability Evaluation for Condition Report 200401165 for the Indications on Heat Exchanger E-122A (ER #04105546)

- Operability Evaluation for CR 200401391 (5/7/04) for the A and B emergency diesel generators outside air temperature exceeding the specified maximum allowable value of 80F while in the interim ventilation lineup.
- Operability Evaluation for CR 200409741, Pump P209A discharge pressure high.
- Operability Evaluation for CR 20041700, Jet Pump Integrity per TS 4.6.E.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope (1 sample)

The inspector reviewed outstanding operator work arounds, burdens, control room deficiencies, compensatory tour checks, tagouts in effect greater than ninety days, and disabled control room annunciators to assess the cumulative effects on the reliability and availability of mitigating safety systems, the potential for misoperation, and the ability of the operators to respond to plant transients and accidents in a correct and timely manner. In addition to review of the data bases for the afore mentioned items, the inspector reviewed procedure 1.3.34.4, Compensatory Measures, conducted plant walkdowns, and interviewed station operators to assess the impact of the identified items and to identify whether significant operator workarounds had not been identified.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (5 samples)

The inspector reviewed post-maintenance test activities on risk significant systems to verify that the effect of the test on the plant had been evaluated adequately, test equipment was appropriate and controlled, the test was properly performed in accordance with procedures, the test data met the required acceptance criteria, and the test activity was adequate to verify system operability and functional capability following maintenance. The inspector verified that systems were properly restored following testing and that discrepancies were appropriately documented in the corrective action process. References used for this review are listed in the attachment to this report. The inspection activity represented 5 samples of post-work testing.

- MR P9700894, Test Agastat Relays for Containment Isolation Valves, 4/28/4 (Condition Reports 200401280 and 200401285).
- MR P9700892 and 04104813 on 5/5/4 for Agastat Relay Replacement Affecting Secondary Containment Reset Logic.
- MR 04105247, E RBCCW Pump Breaker 52M-1433



- MR 02114141, A Emergency Diesel Generator Refueling PM
- MR 03117058, A EDG Droop and Emergency Start Relay replacements

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (7 samples)

The inspector reviewed and/or observed surveillance testing to verify that the test acceptance criteria was consistent with technical specifications, ASME Code inservice test requirements, and Updated Final Safety Analysis Report requirements, the test was performed in accordance with the written procedure, the test data was complete and met procedural requirements, and the system was properly returned to service following testing. The inspector observed pre-job briefs for the test activities. The inspection activity represented 7 inspection samples:

- 2.2.32, Attachment 5 & 6, Inservice Testing of Heat Exchanger SSW Isolation Valves 29-HO-3823, 3827, 3828, 3832, 3833, 3837, 3838 and 3842 during May 2004.
- 8.5.2.2.1, LPCI System Loop A Operability - Pump Quarterly and Biennial (Comprehensive) Flow Rate Tests and Valve Tests.
- 8.M.2-2.1.11, Attachment 2, Emergency Buses A5 and A6 4.16KV Startup Transformer Undervoltage and Degraded Voltage Relays.
- 8.M.2-2.1.10, Attachment 2, 4160 Volt Emergency Buses A5 and A6 Loss of Voltage and Degraded Voltage Relays.
- 8.5.4.6, HPCI Pump Test from Alternate Shutdown Panel
- 8.6.5.1, Jet Pump Operability Check (Condition Report 200401700)
- 9.17, Core Flow Evaluation per section 8.1.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 sample)

The inspector observed training of licensed operators on May 3, 2004, to evaluate the operators ability to properly classify plant events in accordance with the Emergency Action Levels and complete the required notifications for plant events. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (2 samples)

The inspector reviewed the mitigating system cornerstone safety system unavailability performance indicator (PI) data for the HPCI and RCIC systems to assess the accuracy and completeness of reported data. The inspector reviewed condition reports, portions of operator logs, maintenance rule records, and NRC Inspection reports for the period of July 2003 through March 2004. The inspector verified that Entergy had classified equipment unavailability in accordance with NRC endorsed criteria contained in NEI 99-02, "Regulator Assessment of Performance Indicator Guideline." The inspector reviewed condition reports 200401858 and 200401903 documenting minor errors in the reported unavailability for the HPCI and RCIC systems and verified that Entergy planned to capture the corrected information in the next routine quarterly submittal

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)1. Review of Corrective Action Program Issues (71152)a. Inspection Scope (1 sample)

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," the inspector performed a screening of each item entered into Entergy's corrective action program. This review was accomplished by reviewing printouts of each condition report, attending daily screening meetings and/or accessing Entergy's database. The purpose of this review was to identify conditions such as repetitive equipment failures or human performance issues that might warrant additional follow-up.

b. Findings

No findings of significance were identified.

2. Semi-annual trend review (71152)a. Inspection Scope (1 sample)

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," the inspector performed the semi-annual trend review to identify trends, either Entergy or NRC identified, that might indicate the existence of a more significant safety issue. Included within the scope of this review were:

- condition reports generated from January 2004 through May 2004,
- the corrective action program trend report for the first quarter 2004,
- work order listings for rework and completed corrective maintenance from January through May 2004,
- adverse trend condition reports written over the past 4 quarters,
- daily plant status report listing of operations equipment problems, operability evaluations, and temporary alterations,
- equipment reliability watch list
- first quarter 2004 system health reports & maintenance rule information.

The inspector identified an adverse trend in equipment performance as reflected in condition reports (CRs) 200400624, 200210824 and 200304008, which documented the impact of failed 125 vdc Bussmann fuses on plant safety systems. This matter and the associated finding are described in Section 1R13 of this report.

b. Findings

No findings of significance were identified.

3. Annual Sample Review (71152)

a. Inspection Scope (2 samples)

Control Room Annunciator System Failures (1 sample). The inspector reviewed the Condition Reports (CRs) and related documentation regarding failures of the main control room Beta 4100 annunciator system that occurred in the years 2002 and 2003. The annunciator system failures were documented in NRC inspection reports 2002-006 and 2002-007, and Condition Reports CR 200210889, 200212641, and CR 20030767. Further NRC review of the corrective actions for this issue is described in NRC Inspection Report 2004-002.

The inspector conducted this review to ensure that Entergy properly identified and evaluated the problems associated with the events, and implemented appropriate corrective actions. The inspector reviewed the operational performance of the annunciator system to assess the effectiveness of the corrective actions.

Actions to Address Siren Hardware Issues (1 sample). The inspector reviewed the Condition Reports (CRs) and related documentation regarding failures of the sirens in the public alert and notification system that occurred in the years 2003 and 2004. The siren failures were documented in Condition Reports CR 200302377, 200302423, and CR 200400110. Further NRC review of the corrective actions for this issue are described in NRC Inspection Report 2004-002. The inspector conducted this review to ensure that Entergy properly identified and evaluated the problems associated with the events, and implemented appropriate corrective actions.

The inspector reviewed the status of Entergy's continuing actions to improve siren system component and testing, including the development of operational performance criteria consistent with the present system control technology. The inspector reviewed the operational performance of the siren system to assess the effectiveness of the corrective actions.

b. Findings

No findings of significance were identified.

4. Cross Reference to PI&R Findings Documented Elsewhere

Section 1R13 describes a finding related to Entergy not taking adequate corrective actions in response to industry operating experience to preclude the recurrence of a significant condition adverse to quality associated with Bussmann fuses.

4OA3 Event Follow-up (71153)

1. (Closed) LER 50-293/2004-002: HPCI Fuse Failure While System Inoperable for Test. The inspector reviewed Entergy's actions associated with Licensee Event Report (LER) 50-293/2004-002. Corrective actions were described in Condition Report 20040624. This event was also described in Section 1R13 of this report. The LER provided an accurate description of the event and followup actions. This LER is closed.
2. (Closed) LER 50-293/2001-002-01: CRHEAFS Unable to Maintain Control Room Positive Pressure. The inspector reviewed Entergy's actions associated with the supplemental report to Licensee Event Report (LER) 50-293/2001-002-01. The inspector reviewed the corrective actions as described in the LER supplement. This event was also described in Section 4OA3 of NRC Report 2001-07. The LER provided an accurate description of the event and followup actions, including the results of the root cause evaluation. This LER is closed.

4OA5 Other

1. TI 2515/156, Offsite Power System Operational Readiness  
Cornerstones: Initiating Events, Mitigating Systems

- a. Inspection Scope

The inspector performed Temporary Instruction 2515/156, *Offsite Power System Operational Readiness*. The inspector collected and reviewed information pertaining to the offsite power system specifically relating to the areas of the maintenance rule (10 CFR 50.65), the station blackout rule (10 CFR 50.63), offsite power operability, and corrective actions. The inspector reviewed this data against the requirements of 10 CFR 50 Appendix A General Design Criterion 17, *Electric Power Systems*, and Plant Technical Specifications. This information was forwarded to NRR for further review.

- b. Findings

No findings of significance were identified.

2. Strike Contingency Planning (92709)

- a. Inspection Scope (1 sample)

Entergy developed the PNPS Staffing Contingency Plan (SCP) to provide a sufficient number of qualified personnel to continue Pilgrim Station operations assuming union personnel engage in a job action. Using the guidance of Inspection Procedure 92709, the inspector reviewed Entergy's plans to address a potential job action at the site. The inspection included an evaluation of the strike contingency plan content and the actions needed to implement the plan; a review to determine whether the number of qualified personnel needed for the proper operation and safety of the facility would be available; a review to determine if reactor operation and facility security would be maintained as

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required; and, a review to determine if the plan complies with the requirements in technical specifications and other NRC requirements. Entergy's actions to complete the contingency planning and preparations were in progress at the end of the inspection. NRC review of this area continued at the end of the inspection.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On July 1, 2004, the inspector presented the inspection results to Mr. S. Bethay and other members of the plant staff. The inspector confirmed that no proprietary information was provided or examined during the inspection.

4OA7 Licensee-Identified Violation

The following violation of very low safety significance (Green) was identified by Entergy and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-cited Violation.

Technical Specification 5.4.1 and Regulatory Guide 1.33, Revision 2, Appendix A, requires the licensee to implement procedures to perform maintenance on safety related equipment, and to perform preventive maintenance in accordance with established schedules for parts that have a specific lifetime. Contrary to the above, the licensee established preventive maintenance procedures and schedules to replace certain relays in the control circuits for safety-related containment isolation valves, but failed to replace 6 relays prior to the expiration of their service life on 4/23/04. The licensee captured this matter, including immediate and long term corrective actions, along with actions to prevent recurrence, in Condition Reports 200401224 and 200401290.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

**SUPPLEMENTAL INFORMATION****KEY POINTS OF CONTACT**Energy personnel

E. Almieda	Component engineer
M. Balduzzi	Site Vice President
S. Bethay	Director Safety Assessment
G. Choquette	Senior Engineer
P. Dietrich	General Manager
D. Ellis	Licensing
V. Fallacara	Training Manager
J. Gaetdke	Senior Engineer
M. Gatslick	Licensing
P. Harizi	Senior Lead Engineer
K. Kampschneider	System Engineer
J. Keene	Senior Engineer
P. Leavitt	Chemist
W. Lobo	Licensing Engineer
E. Olson	Operations Manager
D. Perry	Radiation Protection Manager
T. White	Director of Engineering

**LIST OF ITEMS OPENED, CLOSED AND DISCUSSED**Open and Closed

05000293/2001-002	LER	CRHEAFs Unable to Maintain Control Room Pressure
05000293/2004-002	LER	HPCI Fuse Failure While System Inoperable for Test
05000293/2004-001	NCV	Inadequate Corrective Actions for Fuses Affecting HPCI

**LIST OF DOCUMENTS REVIEWED****References for Section 1R04**

Procedure 2.2.8, Standby AC Power System (Diesel Generators)  
 Procedure 2.1.12.1, Emergency Diesel Generator Daily Surveillance  
 Procedure 2.2.108, Diesel generator Cooling and Ventilation System  
 Procedure 8.5.4.1, HPCI System Testing  
 Procedure 2.2.22, RCIC System Operation  
 Technical Specification 3.5, Core and Containment Cooling Systems  
 UFSAR Section 4.7, RCIC System  
 UFSAR Section 6.4.1, HPCI system

**References for Section 1R06**

UFSAR Section 10.7.6, "Salt Service Water System Safety Evaluation"  
Pilgrim Nuclear Power Station Probabilistic Safety Assessment Appendix E Internal Flood Analysis  
Procedure 8.C.42, Subcompartment Barrier Control Surveillance  
S&SA 89-068, EQ Zone Flood Levels  
EOP-4 Secondary Containment Control  
Annunciator Response Procedure (ARP) Panel 904L, F6, "RBCCW Pump Area Leakage"  
Annunciator Response Procedure (ARP) Panel 904L, C6, "RHR B Quad Leakage"  
Annunciator Response Procedure (ARP) Panel 904L, D7, "RHR A Quad Leakage"  
Annunciator Response Procedure (ARP) Panel 904L, E6, "HPCI Room Leakage"  
NEDORANDUM 993401558, Door #6 RBCCW Pump Rooms Watertight Door Design Issue  
NEDORANDUM 989604445, EQ Zone Flood Levels  
Procedure 8.E.30.1, Closed Cooling Water System (CCWS) Instrumentation Calibration and  
Functional Test  
Procedure 8.E.23 Attachment 5, HPCI System Instrument Calibration  
CRs 200200069, 200200104, 200209158, 200209355200211829, 200213064, 200302993,  
200400535, 200401107, 200401171

**References for Section 1R07**

Procedure 2.2.32, Salt Service Water System Attachment 5 for May 2004  
Procedure 2.2.32, Salt Service Water System Attachment 6 for May 2004  
Procedure 2.2.32, Salt Service Water System Attachment 7 for May 2004  
UFSAR Section 10.7, Salt Service Water system  
Calculation M630, SSW System Hydraulic Evaluation  
Calculation IN1-213, RBCCW Differential Pressure Uncertainty Calculation  
Condition Reports 20040816, 200401100, 200401158, and 200401165

**References for Section 1R12**

345 KV Maintenance Rule Basis Document  
System Health Report, 345 KV, Main/ Auxiliary/Startup Transformer, Generator Excitation, and  
Isophase Bus  
Maintenance Request 03120118, 02122384, 03121040, 02121041, 03121042  
Condition Reports 20040918, 0919. 0937, 0972, 1396

**References for Section 1R13**

MR 10002341, QKA (MO-1001-7A) Relay Located in C903 Panel is Intermittent  
MR 04104809, Bench check on New Relay for 16A-K6XA1 in Panel C170  
MR 04104811, Bench check on New Relay for 16A-K6XB1 in Panel C171  
Equivalency Evaluation 797 for Agastat Relay Series EGP  
Condition Report 200401224



**References for Section 1R14**

Alarm Response Procedure (ARP) 904L-C7, CRD QUAD Leakage, Rev 8  
Procedure 2.2.87, Control Rod Drive System, Rev 98  
Procedure 2.4.4, Loss of CRD Pumps, Rev 18  
Emergency Operation Procedure EOP-4, Secondary Containment Control, Rev 7  
Condition Report 200401509

**References for Section 1R15**

MR 04106146, Test Agastat Relay 16A-K18X3 to Ensure Operability  
3.M.1-34 for MR 04106146 Functional Testing of Relay Relay 16A-K18X3  
Condition Reports 200401224 and 200401290  
Active LCO ACT-1-04-0061 for containment vent valves AO-5041 A/B and AO-5043 A/B  
Emergency Operating Procedure EOP 3, Primary Containment Control  
Procedures 5.4.6 and 5.3.21  
M996 EDG Room Temperature Differentials  
S&SA Memorandum dated 6/10/4 for CR 200401700 - Drive Flow to Core Flow Curve Validation

**References for Section 1R19**

MR P9700894, Agastat Relay Model GP (16A-K18X3) Replacement  
MR P970087, Agastat Relay Model GP 16A-K6XA Replacement  
Condition Reports 200401280 and 2000401285  
Equivalency Evaluation 797, Agastat Relay Series EGP  
Drawings M1P464-14, E713 Sheets 1& 2, M227, Sheet 1, M239 Sheet 1, E401, E403, E548, and E714  
3.M.3-61.5, EDG Two-Year Overhaul Preventive Maintenance  
3.M.3-61.2, EDG General and Preventive Maintenance Corrective Actions  
8.9.1, Emergency Diesel Generator and Associated Emergency Bus Surveillance  
8.M.2-2.10.8.3, Diesel Generator "A" Initiation BY Core Spray Logic  
E27, Schematic Diagram Diesel Generator "1" X107A  
M6-22-14, Schematic Diagram Diesel Generator "A" X107A Engine Control  
M1K4-11, Elementary Diagram Core Spray System  
A EDG MRs 03118536, 04102185, 04107279, P9500006, 04107245, 04102319, 03100594, 02113762, 02112003, 04107348, 04104246, 03121976, 04104042, 02116145, 03117058, 04100772, 04103035, 02114141

**References for Section 1R22**

Procedure 8.5.4.6, HPCI System Testing  
Technical Specification 3.5, Core and Containment Cooling Systems  
UFSAR Section 6.4.1, HPCI system

**References for Section 4OA2**

1.3.121.3, Corrective Action Program Trend Analysis and Reporting

**LIST OF ACRONYMS**

ARP	Alarm Response Procedure
ARP	Annunciator Response Procedure
CFR	Code of Federal Regulations
CRHEAFs	Control Room High Efficiency Air Filtration System
CRD	Control Rod Drive
CRs	Condition Reports
EDG	Emergency Diesel Generator
GSC	Gland Seal Condensate
HPCI	High-Pressure Coolant Injection
IR	Inspection Report
LER	Licensee Event Report
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
NRR	Nuclear Regulatory Regulation (Office of NRC)
PI&R	Problem Identification and Resolution
PNPS	Pilgrim Nuclear Power Station
RBCCW	Reactor Building Closed-Cooling Water
RCIC	Reactor Core Isolation Cooling
SDP	Significant Determination Process
SSC	System, Structure or Component
SSW	Salt Service Water
TBCCW	Turbine Building Closed-Cooling Water
UFSAR	Updated Final Safety Analysis Report