

May 3, 2001

Mr. Robert M. Bellamy
Site Vice President
Entergy Nuclear Generation Company
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, Massachusetts 02360-5599

SUBJECT: PILGRIM INTEGRATED INSPECTION REPORT NO. 05000293/2001-002

Dear Mr. Bellamy:

On March 31, 2001, the NRC completed an inspection at your Pilgrim reactor facility. The enclosed report documents the inspection findings which were discussed on April 5, 2001, with Mr Charles Dugger and other members of your staff.

This 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.

No findings of significance were identified.

In accordance with 10 CFR 2.790 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 Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Curtis J. Cowgill, Chief
Projects Branch 6
Division of Reactor Projects

Docket No.: 05000293
License No.: DPR-35

Enclosure: Inspection Report 05000293/2001-002

Attachment 1: Supplemental Information

cc w/encl:

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 50-293

License No: DPR-35

Report No: 05000293/2001-002

Licensee: Entergy Nuclear Generation Company

Facility: Pilgrim Nuclear Power Station

Location: 600 Rocky Hill Road
Plymouth, MA 02360

Inspection Period: February 18, 2001 through March 31, 2001

Inspectors: R. Laura, Senior Resident Inspector
R. Arrighi, Resident Inspector
J. Furia, Radiation Protection Inspector, Division of Reactor Safety (DRS)
D. Silk, Emergency Preparedness Inspector, DRS
G. Smith, Physical Security Inspector, DRS
P. Frechette, Physical Security Inspector, DRS

Approved By: Curtis J. Cowgill, Chief
Projects Branch 6
Division of Reactor Projects
Region 1

SUMMARY OF FINDINGS

IR 05000293-2001-002; on February 18, 2001 through March 31, 2001;Entergy Nuclear Generation Company; Pilgrim Nuclear Power Station.

The inspection was conducted by resident inspectors and three regional specialist inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). The significance of findings for which the SDP does not apply is indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

A. Inspector Identified Findings

None

B. Licensee Identified Findings

A violation of very low significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee appear reasonable. This violation is listed in Section 40A7 of this report.

TABLE OF CONTENTS

1.	REACTOR SAFETY	1
	1R04 Equipment Alignment	1
	1R05 Fire Protection	1
	1R11 Licensed Operator Requalification	1
	1R12 Maintenance Rule Implementation	2
	1R13 Maintenance Risk Assessments and Emergent Work Evaluation	2
	1R15 Operability Evaluations	3
	1R19 Post-Maintenance Testing	3
	1R22 Surveillance Testing	4
2.	RADIATION SAFETY	5
	2OS1 Access Control	5
	2OS2 ALARA Planning and Controls	5
	2OS3 Radiation Monitoring Instrumentation	6
3.	SAFEGUARDS	6
	3PP1 Response to Contingency Events	6
4.	OTHER ACTIVITIES (OA)	7
	40A1 Performance Indicator Verification	7
	40A3 Event Follow-up	8
	40A6 Management Meetings	9
	40A7 Licensee Identified Violations	10
	ATTACHMENT 1	11
	List of Items Opened, Closed and Discussed	11
	Partial List of Documents Reviewed	11
	List of Acronyms	11

Report Details

SUMMARY OF PLANT STATUS

Pilgrim Nuclear Power Station began the period at 100 percent core thermal power. On March 8, 2001, power was reduced to 50 percent to perform a condenser backwash. The unit was returned to 100 percent power where it operated for the remainder of the period.

1. REACTOR SAFETY (Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity)

1R04 Equipment Alignment

a. Inspection Scope

Two partial system walk downs were performed on the core spray system and also on the containment isolation system logic. The containment isolation valve status mimic was reviewed to ensure proper valve position. The walk down also included accessible portions of the core spray system and also verification of remote operating status lights. The inspector confirmed that the systems were properly aligned to support normal and emergency plant operations.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

Three plant areas important to reactor safety were toured 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 fire barriers used to prevent fire damage or fire propagation. The areas toured included the control room front and back areas, the control rod drive system area, and the "A" residual heat removal (RHR) system area. Any degraded conditions were compensated by compensatory measures until appropriate corrective actions could be taken.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspector compared the simulator control panels to those in the main control room to verify consistency, especially with recent modifications. A recent modification upgraded both loop temperature controllers in the reactor building close cooling water (RBCCW) system. The new controllers were of a digital design. Operators received

adequate training on the implementation of the new controllers. The simulator was scheduled to be updated with the new controller design.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspector reviewed problems involving selected in-scope systems, structures, and components (SSC) to assess the effectiveness of the maintenance rule program. The review focused on proper scoping and characterization of failed SSCs as related to the following:

- Proper classification of equipment failures for the RHR system for the previous 24 months. The RHR system is designated as an (a)(2) system. Problem reports (PRs) reviewed included PR 00.9497 (Y-10 relay drop out), and PR 00.9367 (torus leakage).
- Proper characterization of problem report PR 01.9004 for incorrect relays installed in the safety-related 480 VAC B6 transfer logic scheme.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspector reviewed the following on-line maintenance work plans/activities to assess the adequacy of the licensee's risk assessment process. The inspector reviewed the plans against the criteria contained in licensee procedures 1.5.21, "Integrated Scheduling Guidelines," and 1.5.22, Risk Assessment Process." The inspection included a review of the risk assessments and contingencies established, and verification that the increase in plant risk and protected equipment was conveyed during the licensee's morning meeting and during operator shift turnover. The inspector also verified that the risk program was rerun when changes were made to the work plan to identify changes in overall plant risk.

- Planned work on the reactor core isolation cooling system on March 2, 2001.
- Planned surveillance 8.M.2-2.10, degraded voltage, scheduled March 5, 2001.
- The work plan for the week of March 12, 2001.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspector reviewed the following operability evaluations to verify that continued operability was justified. The Pilgrim Updated Final Safety Analysis Report (UFSAR), technical specifications, and licensee procedure 1.3.34.5, "Operability Evaluations," were used as references to assess the adequacy of the operability evaluations. The inspector also verified that the identified corrective actions to correct the degraded condition were adequate and scheduled in the licensee's work control process.

- OE 01-008, Control room high efficiency air filtration system failure to provide positive pressure in the control room.
- OE 01-014, "A" train reactor building closed cooling water system degraded piping.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspector reviewed and/or observed portions of the following post-maintenance tests (PMT) to ensure that the test activities were adequate to verify operability and functional capability of the system/component following maintenance:

- MR 01103832: to replace reactor core isolation cooling (RCIC) system flow controller 3832 at the alternate shutdown panel. The PMT specified a pre-installation test for the replacement controller and then actually run the RCIC system turbine using the replaced controller to verify proper system operation using procedure 8.5.5.6. When the licensee ran the PMT, the new controller failed to transfer properly from manual to automatic mode of operation. The licensee initiated PR 01.9261 to document, evaluate and correct this deficiency. The inspector noted that the operators demonstrated the operability of the RCIC system using the normal control room RCIC system flow controller. The inspector noted that the PMT worked effectively by identifying a problem with the replacement RCIC system flow controller in the alternate shutdown panel. At the end of this inspection period, the licensee preliminarily determined that an internal switch inside the replacement controller was not in the correct alignment.
- MR 01104504: to troubleshoot and repair the rod worth minimizer after a self test failure. I&C technicians subsequently adjusted the internal power supplies. The PMT was performed using procedure CSWI No. 2024, NUMAC Rod Worth Minimizer Surveillance Check.
- MR 01100883: to repair radiation monitor RM-1705-2B, Main Steam Line PRM.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspector reviewed the results of the following surveillance tests:

- Core Spray System Logic System Functional Test
- "D" Salt Service Water System Operability Test
- "A" Core Spray Header Differential Pressure

The inspector verified that the system requirements were correctly incorporated into the test procedures and that the test acceptance criteria was consistent with the technical specifications, the licensee's Inservice Test program and the Pilgrim UFSAR requirements. The review also included an evaluation of the completes surveillance test data to verify that the selected systems and components were capable of performing their intended safety functions and operational readiness.

The inspector observed that problems that arose during surveillance tests were properly resolved. For example, the "D" SSW pump test did not initially pass the surveillance test acceptance criteria for flow and discharge head. Licensee investigation identified some local blockage at the pump impeller in the intake bay. Specifically, a tygon hose and plastic catch containment was lodged around the pump impeller. Divers were used to clear the blockage. The pump subsequently successfully passed the test acceptance criteria. The licensee initiated a problem report to document, evaluate and correct this issue.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Occupational Radiation Safety [OS]

2OS1 Access Control

a. Inspection Scope

The inspector reviewed the access control program (as required under Plant Technical Specifications and 10 CFR 20.1601) by examining the controls established for exposure significant areas, including postings, markings, control of access, dosimetry, surveys and alarm set points. Controls reviewed included: key control for locked high and very high radiation areas; use of radiation work permits to control access to radiologically significant areas; and, pre-job radiological briefings. The inspector also reviewed portions of the licensee's technical training program related to the utilization of electronic remote dosimetry (teledosimetry) for radiologically significant work that will be performed during the upcoming refueling outage.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope

The inspector exposure goals established for 2001. In accordance with 10 CFR 20.1101(b), areas reviewed included: a review of the use of low dose waiting areas; review of on-job supervision provided to workers; and, a review of individual exposures from selected work groups. An evaluation of engineering controls utilized to achieve dose reductions, and analysis of licensee source term reduction plans was also conducted. For 2001, the annual goal of 190 person-rem includes 40 person-rem for operations and 150 person-rem for the upcoming refueling outage (RF013).

The inspector examined ALARA reviews prepared for radiologically significant work to be performed during the upcoming refueling outage (RF013). Work reviewed included: refueling path (reactor disassembly, fuel movement, reactor reassembly, cavity decon); in-service inspection; control rod drive change out; and, local leak rate testing.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation

a. Inspection Scope

The inspector reviewed field instrumentation utilized by health physics technicians and plant workers to measure radioactivity, including portable field survey instruments, friskers, portal monitors and small article monitors. The inspector conducted a review of instruments observed in the reactor and turbine buildings, specifically verification of proper function and certification of appropriate source checks for these instruments which are utilized to ensure that occupational exposures are maintained in accordance with 10 CFR 20.1201.

The inspector reviewed the most recent calibrations performed for the licensee's two whole body counters, together with the results of the most recent quarterly quality control checks on these systems. Records available also included a Quality Assurance Surveillance Report (No. 00-119) of the whole body counter systems in use.

The inspector examined the most recent calibration data for selected in-plant radiation monitoring systems, which were randomly chosen by the inspector from those listed in the licensee's UFSAR. Three process radiation monitor systems listed in Section 7.12 of the UFSAR were selected: drywell airborne activities radiation monitoring system; control room ventilation intake radiation monitoring system; and, torus atmospheric high range radiation monitoring system. Four fixed area radiation monitors, listed in Table 7.13-2 of the UFSAR were selected: RIS-1815-3A (condensate pumps - stairway); RIS-1815-8B (turbine - front stand); RIS-1815-8C (radwaste - sump area); and, RIS-1815-3F (spent fuel pool).

b. Findings

No findings of significance were identified.

3. **SAFEGUARDS**

Physical Protection [PP]

3PP1 Response to Contingency Events

a. Inspection Scope

The following activities were conducted to determine the effectiveness of the licensee's Response to Contingency Events:

On March 12, 2001, performance testing of the intrusion detection system was conducted. This testing was accomplished by touring the entire perimeter and selecting areas of potential vulnerability in the intrusion detection system. As a result of this tour, seven specific locations were selected for testing. An inspector observed the licensee perform crawl, jump and run testing at these locations. A second inspector was

positioned in the alarm station during the tests, to observe audible and visual alarm annunciation, and to evaluate the licensee's camera coverage of the perimeter.

Firearms proficiency was observed on March 14, 2001. The course of fire for stress firing was observed. Five security officers demonstrated their proficiency on this course of fire. In addition, a selected review of seven firearms qualification training records was performed.

A review was conducted of the licensee's defensive strategy, response time lines, target sets and relevant implementing procedures. Upon completion of this review, four table top drills were conducted with a security shift supervisor and a response team leader. The scenario selections, including the adversary entry points and targets, were made by the inspectors for each table top drill.

On March 15, 2001, a review of documentation associated with the licensee's drill and exercise program was conducted. This review included the documentation and critiques for response drills conducted during the four quarters prior to the inspection.

The inspectors also reviewed three PRs generated and entered into the licensee's corrective action program, to address concerns identified during the inspection. The PR's reviewed are identified in the list of documents contained in Attachment 1 of this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

40A1 Performance Indicator Verification

.1 Emergency AC power system

a. Inspection Scope

The inspector reviewed licensee event reports and NRC inspection reports for the period of January 1999 to March 2001 to determine the accuracy and completeness for the reported Pilgrim performance indicator for emergency AC power system. The Pilgrim plant data for the 3 year emergency AC power unavailability was .014 which is less than the specified goal of .025.

b. Findings

No findings of significance were identified.

.2 Occupational Radiation Safety Cornerstone

a. Inspection Scope

The inspector reviewed a listing of all licensee radiological problem reports for the period April 2, 2000 through February 26, 2001, for issues related to the occupational radiation safety performance indicator, which measures non-conformances with high radiation areas greater than 1R/hr and unplanned personnel exposures greater than 1000 mrem TEDE, 5 rem SDE, 1.5 rem LDE, or 100 mrem to the unborn child.

b. Findings

No findings of significance were identified.

.3 Emergency Preparedness Performance Indications

a. Inspection Scope

The inspector reviewed the licensee's process for identifying the data that is utilized to determine the values for the three emergency preparedness performance indicators (PI) which are: (1) Drill and Exercise Performance, (2) Emergency Response Organization Participation, and (3) Alert and Notification System Reliability. The review assessed data from 1999 and 2000. Classification, notification and protective action opportunities were verified by reviewing selected scenarios. Attendance records for drill and exercise participation was reviewed. Details of the siren testing and data collection were discussed with individuals responsible for that program and test data was reviewed for completeness and accuracy.

b. Findings

No findings of significance were identified.

40A3 Event Follow-up

(Closed) LER 50-293/2001-001: Swing Bus B6 Potentially Inoperable Under Certain Conditions Due To Installation of Incorrect Relays

This LER identified improperly configured 125 V DC Joselyn Clark relays that were installed in the B-6 (480 volt AC) emergency load center transfer scheme. The licensee identified, corrected and reported this condition to the NRC pursuant to 10 CFR 50.73 as a potential condition outside of the plant's design basis. Also, this LER was reported to meet Part 21 requirements for nonconforming materials received from a qualified supplier that were installed in a safety related application.

On January 2, 2001, the licensee identified that the aforementioned relay application required a time delay function on four contacts in the relay; however, the installed relay had a time delay function on only two of the four contacts as specified. The licensee issued PR 01.9004 to document, evaluate and correct the problem. These relays had been previously installed as a modification performed during the last refueling outage.

Relay modification kits were obtained from the vendor and time delayed operating links were installed into the B2/B6 relay transfer scheme. A licensee review identified the root cause as the failure of the commercial parts dedicator (Trentec) to detect a mismatch between the relay label and the contact configuration. Entergy personnel also reviewed and initiated corrective actions for the broader aspects of this configuration problem including receipt and inspection practices and also evaluate why the post-modification testing did not identify this problem.

A significance evaluation was performed by the inspector using the Group 1 and Group 2 screening criteria specified in NRC Manual Chapter 0610. The issue was determined to be more than minor using the Group 1 questions. Specifically, a possible impact on safety existed in that the degraded relays could have resulted in a loss of low pressure coolant injection (LPCI) function in certain unlikely conditions. However, the inspector determined that the screening this issue through the significance determination process was not suitable because the answer to all Group 2 questions were "No". Therefore, this event would be considered of very low significance. The inspector noted two factors that reduced the risk significance of this issue. First, a loss of offsite power (LOOP), loss of coolant accident (LOCA) and the failure of electrical bus B6 to reenergize, were all needed to occur simultaneously. That scenario has an extremely low probability of occurring and is considered not credible in PRA space. Secondly, the diverse means of low pressure emergency core cooling was satisfied by the core spray system which has two redundant loops. Hence, this issue is of very low significance. The LER described a licensee identified violation that is listed in Section 40A7.

40A6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. C. Dugger, VP Operations, and other members of licensee management at the conclusion of the inspection on April 5, 2001. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee Identified Violations

The following finding of very low significance was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG 1600, for treatment as a Non-Cited Violation (NCV):

05000293/2001-002-01	NCV	10 CFR 50 Appendix B, Criterion VII, "Control of Purchased Material, Equipment, and Services," requires measures to assure that purchased equipment conform to procurement documents. On January 2, 2001, the licensee identified that certain relays installed in the 480 Volt emergency load center transfer scheme did not meet the procurement specifications. This condition is in the licensee's corrective action program as PR 01.9004, and the licensee has implemented immediate corrective actions restoring the relays to their as-designed configuration.
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**ATTACHMENT 1
SUPPLEMENTAL INFORMATION**

a. List of Items Opened, Closed and Discussed

Opened and Closed

050000293/2001-002-01	NCV	Relay application required a time delay function on four contacts in the relay; however, the installed relay had a time delay function on only two of the four contacts (4OA7)
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Closed

50-293/2001-001	LER	Swing Bus B6 Potentially Inoperable Under Certain Conditions Due To Installation of Incorrect Relays (4OA3)
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b. Partial List of Documents Reviewed

Safeguards Event Reports - 2nd, 3rd, and 4th Quarter, 2000
 Pilgrim Training and Qualifications Plan
 Pilgrim Physical Security Plan
 Selected personnel training records
 PR01.1252, Evaluate Security Forces Timelines
 PR01.1244, Implement upgrade to a portion of the Vehicle Barrier System
 PR01.1229, Upgrade a portion of the Intrusion Detection System, to support warehouse delivery operations

c. List of Acronyms

ALARA	As Low As is Reasonably Achievable
CFR	Code of Federal Regulations
LER	License Evaluation Report
LOCA	Loss of Coolant Accident
LOOP	Loss of Offsite Power
LPCI	Low Pressure Coolant Injection
MR	Maintenance Request
NCV	Non-Cited Violation
PI	Performance Indicator
PMT	Post Maintenance Test
PR	Problem Report
RBCCW	Reactor Building Closed Cooling Water
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
SSC	Systems, Structures and Components
UFSAR	Updated Final Safety Analysis Report