

September 13, 2006

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 TRIENNIAL FIRE PROTECTION
INSPECTION REPORT 05000293/2006009

Dear Mr. Balduzzi:

On August 11, 2006, the NRC completed a triennial fire protection team inspection at the Pilgrim Nuclear Power Station. The enclosed report documents the inspection findings which were discussed at an exit meeting on August 11, 2006, with Mr. K. Bronson 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 regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified. However, a licensee identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy because of the very low safety significance of the violation and because it is entered into your corrective action program. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, 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, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspectors at the Pilgrim Nuclear Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/ADAMS.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

John F. Rogge, Chief
Engineering Branch 3
Division of Reactor Safety

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

Enclosure: Inspection Report No. 05000293/2006009

cc w/encl:

G. J. Taylor, Chief Executive Officer, Entergy Operations
M. Kansler, President, Entergy Nuclear Operations, Inc.
J. T. Herron, Senior Vice President and Chief Operating Officer
C. Schwarz, Vice-President, Operations Support
S. J. Bethay, Director, Nuclear Safety Assurance
O. Limpas, Vice President, Engineering
J. F. McCann, Director, Licensing
C. D. Faison, Manager, Licensing
M. J. Colomb, Director of Oversight, Entergy Nuclear Operations, Inc.
B. S. Ford, Manager, Licensing, Entergy Nuclear Operations, Inc.
T. C. McCullough, Assistant General Counsel
S. Lousteau, Treasury Department, Entergy Services, Inc.
R. Walker, Radiation Control Program, Dept. of Public Health, Commonwealth of Massachusetts
The Honorable Therese Murray
The Honorable Vincent deMacedo
Chairman, Plymouth Board of Selectmen
Chairman, Duxbury Board of Selectmen
Chairman, Nuclear Matters Committee
Plymouth Civil Defense Director
D. O'Connor, Massachusetts Secretary of Energy Resources
J. Miller, Senior Issues Manager
Office of the Commissioner, Massachusetts Department of Environmental Protection
Office of the Attorney General, Commonwealth of Massachusetts
Electric Power Division, Commonwealth of Massachusetts
R. Shadis, New England Coalition Staff
D. Katz, Citizens Awareness Network

Chairman, Citizens Urging Responsible Energy

J. Snizek, PWR SRC Consultant

M. Lyster, PWR SRC Consultant

C. McCombs, Director, MEMA and Commonwealth of Massachusetts, SLO Designee

Commonwealth of Massachusetts, Secretary of Public Safety

Mr. Balduzzi

4

Distribution w/encl: (via E-mail)

S. Collins, RA
M. Dapas, DRA
B. Sosa, RI EDO Coordinator
R. Powell, DRP
T. Walker, DRP
A. Blough, DRS
J. Rogge, DRS
L. Scholl, DRS
J. Shea, PM, NRR
T. Colburn, PM, (Back Up)
W. Raymond, DRP, Senior Resident Inspector
C. Welch, DRP, Resident Inspector
A. Ford, DRP, Resident OA
Region I Docket Room (with concurrences)
ROPreports@nrc.gov (All IRs)

SUNSI Review Complete: JFR (Reviewer's Initials)

DOCUMENT NAME: E:\Filenet\ML062560357.wpd

After declaring this document "An Official Agency Record" it will be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI/DRS		RI/DRS		RI/DRS		RI/DRS			
NAME	LScholl/LLS		JRogge/JFR		RPowell/RJP		WSchmidt/WLS			
DATE	09/01/06		09/12/06		09/05/06		09/07/06			
OFFICE										
NAME										
DATE										

OFFICIAL RECORD COPY

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 05000293

License No. DPR-35

Report No. 05000293/2006009

Licensee: Entergy Nuclear Operations, Inc.

Facility: Pilgrim Nuclear Power Station

Location: 600 Rocky Hill Road
Plymouth, MA 02360

Dates: July 24-28 and August 7-11, 2006

Inspectors: L. Scholl, Senior Reactor Inspector
K. Young, Senior Reactor Inspector
J. Bobiak, Reactor Inspector
O. Ayegbusi, Project Engineer (Training)

Approved by: John F. Rogge, Chief
Engineering Branch 3
Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000293/2006009; 07/24/2006 - 08/11/2006, Entergy Nuclear Operations, Inc., Pilgrim Nuclear Power Station; Triennial Fire Protection Team Inspection.

This report covered a two-week triennial fire protection team inspection by three Region I inspectors. One Green finding was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 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 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

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

REPORT DETAILS

Background

This report presents the results of a triennial fire protection inspection conducted in accordance with NRC Inspection Procedure (IP) 71111.05T, "Fire Protection." The objective of the inspection was to assess whether Entergy has implemented an adequate fire protection program and that post-fire safe shutdown capabilities have been established and are being properly maintained at the Pilgrim Nuclear Power Station. The following fire areas (FAs) and fire zones (FZs) were selected for detailed review based on risk insights from the Individual Plant Examination (IPE)/Individual Plant Examination of External Events (IPEEE):

- C Fire Area 1.9 (Zone 2.2)
- C Fire Area 1.10 (Zones 2.4, 2.9, 2.10)
- C Fire Area 3.2
- C Fire Area 4.3

The inspection team evaluated the licensee's fire protection program (FPP) against applicable requirements which include plant Technical Specifications, Operating License Condition 3.F, NRC Safety Evaluations, 10 CFR 50.48 and 10 CFR 50 Appendix R. The team also reviewed related documents that include the Updated Final Safety Analysis Report Section 10.8, the Fire Hazards Analysis and the Post-Fire Safe Shutdown Analysis Report.

Specific documents reviewed by the team are listed in the attachment.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems

1R05 Fire Protection

.01 Post-Fire Safe Shutdown From Outside Main Control Room (Alternative Shutdown) and Normal Shutdown

a. Inspection Scope

Methodology

The team reviewed the safe shutdown analysis, operating procedures, piping and instrumentation drawings (P&IDs), electrical drawings, the UFSAR and other supporting documents to verify that hot and cold shutdown could be achieved and maintained from outside the control room for fires that rely on shutdown from outside the control room. This review included verification that shutdown from outside the control room could be performed both with and without the availability of offsite power. Plant walkdowns were also performed to verify that the plant configuration was consistent with that described in the safe shutdown and fire hazards analyses. These inspection activities focused on ensuring the adequacy of systems selected for reactivity control, reactor coolant

Enclosure

makeup, reactor decay heat removal, process monitoring instrumentation and support systems functions. The team verified that the systems and components credited for use during this shutdown method would remain free from fire damage. The team verified that the transfer of control from the control room to the alternative shutdown locations would not be affected by fire-induced circuit faults (e.g., by the provision of separate fuses and power supplies for alternative shutdown control circuits).

Similarly, for fire areas that utilize shutdown from the control room, the team also verified that the shutdown methodology properly identified the components and systems necessary to achieve and maintain safe shutdown conditions.

Operational Implementation

The team verified that the training program for licensed and non-licensed operators included alternative shutdown capability. The team also verified that personnel required for safe shutdown using the normal or alternative shutdown systems and procedures are trained and available onsite at all times, exclusive of those assigned as fire brigade members.

The team reviewed the adequacy of procedures utilized for post-fire shutdown and performed an independent walk through of procedure steps to ensure the implementation and human factors adequacy of the procedures. The team also verified that the operators could be reasonably expected to perform specific actions within the time required to maintain plant parameters within specified limits. Time critical actions which were verified included restoration of AC electrical power, establishing control at the remote shutdown and local shutdown panels to provide reactor coolant makeup and decay heat removal.

Specific procedures reviewed for alternative shutdown, including shutdown from outside the control room included the following:

C 2.4.143, Shutdown From Outside Control Room, Rev. 35

C 2.4.143.1, Shutdown With a Fire in Reactor Building East (Fire Area 1.9), Rev. 13

C 2.4.143.2, Shutdown With a Fire in Reactor Building West (Fire Area 1.10), Rev. 14

The team reviewed manual actions to ensure that they had been properly reviewed and approved and that the actions could be implemented in accordance with plant procedures in the time necessary to support the safe shutdown method for each fire area. The team also reviewed the periodic testing of the alternative shutdown transfer capability and instrumentation and control functions to ensure the tests are adequate to ensure the functionality of the alternative shutdown capability.

b. Findings

No findings of significance were identified.

Enclosure

.02 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team reviewed the fire hazards analysis, safe shutdown analyses and supporting drawings and documentation to verify that safe shutdown capabilities were properly protected. The team ensured that separation requirements of Section III.G of 10 CFR 50 Appendix R were maintained for the credited safe shutdown equipment and their supporting power, control and instrumentation cables. This review included an assessment of the adequacy of the selected systems for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and associated support system functions.

The team reviewed the licensee procedures and programs for the control of ignition sources and transient combustibles to assess their effectiveness in preventing fires and in controlling combustible loading within limits established in the FHA. A sample of hot work and transient combustible control permits were also reviewed. The team performed plant walkdowns to verify that protective features were being properly maintained and administrative controls were being implemented.

The team also reviewed the licensee's design control procedures to ensure that the process included appropriate reviews and controls to assess plant changes for any potential adverse impact on the fire protection program and/or post-fire safe shutdown analysis and procedures.

b. Findings

No findings of significance were identified.

.03 Passive Fire Protection

a. Inspection Scope

The team walked down accessible portions of the selected fire areas to observe material condition and the adequacy of design of fire area boundaries (including walls, fire doors and fire dampers), and electrical raceway fire barriers to ensure they were appropriate for the fire hazards in the area.

The team reviewed installation/repair and qualification records for a sample of penetration seals to ensure the fill material was of the appropriate fire rating and that the installation met the engineering design. The team also reviewed similar records for fire protection wraps to ensure the material was of an appropriate fire rating and that the installation met the engineering design.

b. Findings

No findings of significance were identified.

.04 Active Fire Protection

b. Inspection Scope

The team reviewed the design, maintenance, testing and operation of the fire detection and suppression systems in the selected plant fire areas. This included verification that the manual and automatic detection and suppression systems were installed, tested and maintained in accordance with the NFPA code of record and that they would control and/or extinguish fires associated with the hazards in the selected areas. A review of the design capability of suppression agent delivery systems were verified to meet the code requirements for the fire hazards involved. The team also performed a walkdown of accessible portions of the detection and suppressions systems in the selected areas as well as a walkdown of major system support equipment in other areas (e.g. fire protection pumps, Halon and/or CO₂ storage tanks and supply system) to assess the material condition of the systems and components.

The team reviewed electric and diesel fire pump flow and pressure tests to ensure that the pumps were meeting their design requirements. The team also reviewed the fire main loop flow tests to ensure that the flow distribution circuits were able to meet the design requirements.

The team also assessed the fire brigade capabilities by reviewing training, qualification and drill critique records. The team also reviewed pre-fire plans and smoke removal plans for the selected fire areas to determine if appropriate information was provided to fire brigade members and plant operators to identify safe shutdown equipment and instrumentation, and to facilitate suppression of a fire that could impact post-fire safe shutdown. In addition, the team inspected the fire brigade's protective ensembles, self-contained breathing apparatus (SCBA), and various fire brigade equipment (including smoke removal equipment) to determine operational readiness for fire fighting.

b. Findings

A licensee identified violation of the fire detection and suppression requirements of 10 CFR 50 Appendix R is discussed in section 4OA7 of this report.

.05 Protection From Damage From Fire Suppression Activities

a. Inspection Scope

The team performed document reviews and plant walkdowns to verify that redundant trains of systems required for hot shutdown are not subject to damage from fire

suppression activities or from the rupture or inadvertent operation of fire suppression systems. Specifically, the team verified that:

1. A fire in one of the selected fire areas would not directly, through production of smoke, heat or hot gases, cause activation of suppression systems that could potentially damage all redundant trains;
2. A fire in one of the selected fire areas (or the inadvertent actuation or rupture of a fire suppression system) would not directly cause damage to all redundant trains (e.g. sprinkler caused flooding of other than the locally affected train).
3. Adequate drainage is provided in areas protected by water suppression systems.

b. Findings

No findings of significance were identified.

.06 Normal and Alternative Shutdown Capability

a. Inspection Scope

Alternative shutdown capability for the areas selected for inspection utilizes shutdown from outside the control room and is discussed in section 1R05.01 of this report.

.07 Circuit Analyses

a. Inspection Scope

The inspectors verified that the licensee performed a post-fire safe shutdown analysis for the selected fire areas and that the analysis appropriately identified the structures, systems and components important to achieving and maintaining safe shutdown. Additionally, the team verified that the licensee's analysis ensured that necessary electrical circuits were properly protected and that circuits that could adversely impact safe shutdown due to hot shorts, shorts to ground or other failures were identified, evaluated and dispositioned to ensure spurious actuations would not prevent safe shutdown.

The team reviewed and considered fire and cable attributes, potential undesirable consequences and common power supply/bus concerns. Specific items included the credibility of the fire threat, cable insulation attributes, cable failure modes, multiple spurious actuations, actuations resulting in flow diversion or loss of coolant events.

The team also reviewed cable raceway drawings for a sample of components required for post-fire safe shutdown to verify that cables were routed as described in the cable routing matrices.

Cable failure modes were reviewed for the following components:

- C MO1001-47, RHR Shutdown Cooling Valve
- C MO1001-50, RHR Shutdown Cooling Valve
- C 152-509, EDG "A" Output Circuit Breaker
- C 152-504, Bus "A5" Supply Circuit Breaker (from startup transformer)
- C 203-3C, Automatic Blowdown Valve

The team reviewed circuit breaker coordination studies to ensure equipment needed to conduct post-fire safe shutdown activities would not be impacted due to a lack of coordination. The team confirmed that coordination studies had addressed multiple faults due to fire. Additionally, the team reviewed a sample of circuit breaker maintenance and records to verify that circuit breakers for components required for post-fire safe shutdown were properly maintained in accordance with procedural requirements.

b. Findings

No findings of significance were identified.

.08 Communications

a. Inspection Scope

The team reviewed safe shutdown procedures, the safe shutdown analysis and associated documents to verify an adequate method of communications would be available to plant operators following a fire. During this review the team considered the effects of ambient noise levels, clarity of reception, reliability and coverage patterns. The team also inspected the designated emergency storage lockers to verify the availability of portable radios for the fire brigade and for plant operators. The inspectors also verified that communications equipment such as repeaters, transmitters, etc. would not be affected by a fire.

b. Findings

No findings of significance were identified.

.09 Emergency Lighting

a. Inspection Scope

The team observed the placement and coverage area of eight-hour emergency lights throughout the selected fire areas to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation and/or instrumentation monitoring for post-fire safe shutdown. The team also verified that the battery power supplies were rated for at least an 8 hour capacity. Preventive maintenance procedures, the vendor manual, completed surveillance tests and battery replacement

Enclosure

practices were also reviewed to verify that the emergency lighting was being maintained in a manner that would ensure reliable operation.

b. Findings

No findings of significance were identified.

.10 Cold Shutdown Repairs

a. Inspection Scope

The team verified that the licensee had dedicated repair procedures, equipment, and materials to accomplish repairs of components required for cold shutdown which might be damaged by the fire to ensure cold shutdown could be achieved within the time frames specified in their design and licensing bases. The inspectors verified that the repair equipment, components, tools and materials (e.g. pre-cut cables with prepared attachment lugs) were available and accessible on site.

b. Findings

No findings of significance were identified.

.11 Compensatory Measures

a. Inspection Scope

The team verified that compensatory measures were in place for out-of-service, degraded or inoperable fire protection and post-fire safe shutdown equipment, systems, or features (e.g. detection and suppression systems and equipment, passive fire barriers, or pumps, valves or electrical devices providing safe shutdown functions or capabilities). The team also verified that the short term compensatory measures compensated for the degraded function or feature until appropriate corrective action could be taken and that the licensee was effective in returning the equipment to service in a reasonable period of time.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

.01 Corrective Actions for Fire Protection Deficiencies

a. Inspection Scope

The team verified that the licensee was identifying fire protection and post-fire safe shutdown issues an appropriate threshold and entering them into the corrective action program. The team also reviewed a sample of selected issues to verify that the licensee had taken or planned appropriate corrective actions.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

The team presented their preliminary inspection results to Mr. K. Bronson and other members of the site staff at an exit meeting on August 11, 2006. No proprietary information was included in this inspection report.

4AO7 Licensee-Identified Violations

The following violation of very low safety significance (Green) 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 being dispositioned as an NCV.

Cornerstone: Mitigating Systems

Section III.G.3 of 10 CFR 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," requires, in part, that a fixed fire detection and suppression system be installed in areas under consideration for alternative post-fire safe shutdown capability. Contrary to this requirement, selected fire zones within fire areas 1.9 and 1.10 did not have either fixed detection (zones 2.9 and 2.10) or fixed suppression (zone 2.2), nor were these zones included in exemption requests associated with this requirement. This issue was determined to be more than minor because it affected the configuration control attribute of the mitigating system cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events. The inspectors determined the finding was of very low safety significance (Green) because the licensee's safe shutdown analysis identified potential fire damage to equipment in the areas and appropriate plant procedures were

in place to operate affected systems required for post-fire safe shutdown. Also, the absence of detection or suppression in the affected zones would not result in a control room evacuation and thus would not require the use of the more difficult alternative procedure for shutdown from outside the control room. This issue has been entered in the licensee's corrective program (CR PNP-2006-00440).

A- 2

Enclosure

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Blagbrough, Engineering
S. Burke, Fire Protection
R. Daverio, Engineering
S. Das, Engineering
F. McGinnis, Licensing
C. McMorrow, Fire Brigade Training
L. Simmons, System Engineer

NRC

J. Rogge, Chief, Engineering Branch 3, Division of Reactor Safety
W. Raymond, Senior Resident Inspector, Pilgrim Nuclear Power Station
C. Welch, Resident Inspector, Pilgrim Nuclear Power Station

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Open and Closed

NONE

Closed

NONE

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

Fire Protection Licensing Documents

PS-32, Appendix R Safe Shutdown Analysis Report, Rev. 5
Updated Fire Hazards Analysis, Report Number 89XM-1-ER-Q, Rev. E5
FSAR, Pilgrim Nuclear Power Station, Sections 10.8 and 10.16
Safety Evaluation Report, Fire Protection, December 21, 1978
Safety Evaluation - Fire Protection, October 7, 1980
Safety Evaluation for Appendix R to 10CFR Part 50, Items III.G.3 and III.L, November 2, 1987
Safety Evaluation Report, Concerning Licensees Request for Exemption for Duplicate Yard Lighting Section III.J of Appendix R - Pilgrim Nuclear Power Station, August 5, 1987
Letter Dated February 9, 1988, Request for Exemption From 10 CFR Part 50, Appendix R Item III.G.1 Requirement Regarding Hot Shutdown Repairs for A Fire Event in The Plant
Letter dated April 14, 1988, Exemption From Certain Requirements of 10 CFR 50, Appendix R, Section III.G.1 - Pilgrim Nuclear Power Station
99XM-1-ER-NQ, NFPA Code Compliance Assessment Report, Rev. E1
NOP 83 FPI, Fire Protection Plan, Rev. 8

Calculations/Specifications/Engineering Evaluation Reports

PS-30, 480 Volt Breaker Coordination/Protection Settings, Rev. 0
PS-31, DC System Overcurrent Protection Coordination Study, Rev. 1
PS-63, Bus B1, B2, and B6 Breaker Setting 480 V Switchgear, Rev. 0
87XE-2ER-Q-E0, Report on CT Damage Caused by Fire Related Open Circuits, Rev. E0
FPEE-91, Battery Room Fire Doors, Rev. 0
FPEE-125, MTS-1 Gang Wrap of Conduits, Rev. 0
M-506, Specification for Furnishing and Installing Fire Door Assemblies in PNPS, Rev. E0
M-533, Specification for Designing, Furnishing, and Installing Halon 1301 Fire Extinguishing System, Rev. 2
M-570, Fire Barrier and Secondary Containment Penetration Seal Systems, Rev. E10
GE-NE-T23-00749-01, Analysis of Design Basis Events for Containment Heat Removal, December 23, 1997 (SUDDS/RF#97-96), Rev. 0
EAS 82-0787, Safe Shutdown Appendix R Analyses for the Pilgrim Nuclear Power Plant (SUDDS/RF#87-889), Rev. 0
S&SA 82-122, Addressing ADS Accumulator Capacity as it Relates to Appendix R Safe Shutdown Analysis, March 17, 1982

Design Basis Documents

SDBD-01, Automatic Depressurization System/Main Steam System, Rev. E0
SDBD-10, System Design Basis Document for the RHR System, Rev. 1
SDBD-13, System Design Basis Document for RCIC, Rev. E0

SDBD-14, System Design Basis Document for the Core Spray System, Rev. E0
SDBD-23, System Design Basis Document for the HPCI System, Rev. E0
TDBD-105, Design Basis Document for Fire Protection/Appendix R Program, Rev. 1

Procedures

8.B.14, Fire Protection Technical Requirements, Rev. 37
3.M.3-5, GE Magnablast Medium Voltage Breaker Preventive Maintenance, Rev. 27
8.Q.3-4, 125/250 DC Motor Control Center and Breaker Panel Testing & Maintenance, Rev. 50
1.4.23, Fire Brigade Training Drill, Rev. 22
2.2.25, Fire Water Supply System, Rev. 52
2.2.27, Carbon Dioxide Systems, Rev. 23
2.2.28, Dry Chemical Systems, Rev. 9
2.4.54, Loss of All Fire Suppression Pumps or Loss of Redundancy in the Fire Water Supply System, Rev. 20
3.M.3-49, Emergency Lighting Battery Maintenance/Preventive Maintenance Procedure, Rev. 25
5.5.1, General Fire Procedure, Rev. 24
5.5.2, Special Fire Procedure, Rev. 35
8.B.5, Carbon Dioxide 'Cardox' Fire Protection, Rev. 11
8.B.7, Fixed Dry Chemical Fire Protection Systems, Rev. 27
8.B.14, Fire Protection Technical Requirements, Rev. 37
8.B.21, Emergency Lighting Units, Rev. 33
EN-DC-127, Control of Hot Work and Ignition Sources, Rev. 2
ENN-DC-161, Transient Combustible Program, Rev. 1
PDC 87-29, Communications for Alternate Shutdown, Rev. A

Completed Tests/Surveillances

2.1.19, Suppression Chamber Temperatures, Rev. 16, Completed May 25, 2004, and January 10, 2006
8.5.1.5, Core Spray MOV Operability From Alternate Shutdown Panel, Rev. 15, Completed April 26, 2005, and May 1, 2005
8.5.2.6, RHR MOV Operability From Alternate Shutdown Panels, Rev. 23, Completed April 9, 2005, and May 5, 2005
8.5.3.8, RBCCW Pump and Valve Alternate Shutdown Panel, Rev. 11, Completed June 19, 2005, and June 29, 2005
8.5.4.6, HPCI Pump and Valve Operability From Alternate Shutdown Panel, Rev. 31, Completed May 25, 2004
8.5.5.6, RCIC Pump & Valve Operability From Alternate Shutdown Panel, Rev. 26, Completed January 10, 2006
8.5.6.4, ADS Operability From Alternate Shutdown Panel, Rev. 10, Completed May 2, 2005, and May 4, 2005
8.9.13, Diesel Generator Alternate Shutdown Panel Test, Rev. 17, Completed May 3, 2005
8.B.4.12, Fire Panel C93, Emergency Diesel Generator Building, Functional Test, Completed May 01, 2006

A-4

8.B.4.13, Fire Panel C94, Turbine Building, Functional Test, Completed May 7, 2005 and June 19, 2006
8.B.6.1, EDG 'A' Pre-Action Sprinkler System Functional Test, Completed March 15, 2005
8.B.9.1.3, Condenser Bay Sprinkler Main Drain Test, Completed April 22, 2005
8.B.9.2.3, Condenser Bay Wet Pipe Sprinkler Alarm Test FSAR Related, Completed April 21, 2005
8.B.12, Fire Protection System Flow Tests, Completed November 17, 2005
8.B.15, Annual Functional Tests of Fire Pumps, Completed July 19, 2004 and August 30, 2005
8.B.21, Emergency Lighting Units, Completed July 14, 2006
8.B.22, Halon 1301 System - Cable Spreading Room, Completed January 9, 2006 and June 6, 2006
SI-FP.2004, Inspection of Fire Barriers for the Electrical Equipment Rooms, Completed February 10, 1997
TP-83-29-1, Fire Extinguishing Halon System for Cable Spreading Room Discharge Test and Temperature-Pressure Monitoring, Rev. 2
TP96-016, PNPS 2.4.143.1 and 2.4.143.2 Walkthrough, Rev. 0, Completed July 26, 1996

Quality Assurance (QA) Audits and System Health Reports

Audit Report QA-09-2004-PNP-1, Fire Protection, dated July 2, 2004
Audit Report QA-09-2005-PNP-01, Fire Protection, dated October 31, 2005
Audit Report QA-09-2006-PNP-1, Triennial Fire Protection Program Audit, dated March 6, 2006

Drawings

E1, Sh. 1, Single Line Diagram, Station, Rev. 21
E1, Sh. 2, Single Line Diagram, 23KV Supply Station Service E19, Rev. 21
E6, Sh. 1, Single Line Meter & Relay Diagram, Generator & Auxiliary Transformers, Rev. E16
E6, Sh. 2, Single Line Meter & Relay Diagram, Generator & Auxiliary Transformers, Rev. E0
E7, Single Line Meter & Relay Diagram, 4160 Volt System, Rev. E25
E9, Single Line Meter & Relay Diagram, 480 V System - Load Centers & Motor Control Centers B10 and B20, Rev. E55
E10, Single Line Diagram - 480 V System Motor Control Centers B14, B15, B17, B18, B28 & B29, Rev. E41
E13, Single Line Relay & Meter Diagram, 125 V & 250 V DC Systems, Rev. E80
E14, Single Line Diagram 120 V Instrument AC Vital and Reactor Protection AC Systems and ± 24 VDC Power System, Rev. E34
E27, Sh. 1, Schematic Diagram Diesel Generator "1" X107A, Rev. 25
E27, Sh. 3, Wiring Block Diagram Diesel Generator "A" & "B", Rev. E22
E33, Schematic Diagram 4160V System Diesel Generator Lockout Relay, Rev. E2
E34, Schematic Diagram 4160V System Protection Relays, Rev. E1
E35, Schematic Diagram 4160V System Auxiliary Relays & Misc. Schemes, Rev. E11
E38, Schematic Diagram 4160V System Breakers 152-504 & 152-604, Rev. E13
E40, Schematic Diagram 4160V System Breakers 152-509 & 152-609, Rev. 25
E298, Conduit & Tray Layout Reactor Building Area 3, Rev. E21
E316, Conduit & Layout Diesel Generator Building Area 5, Rev. E22
E329, Conduit & Tray Layout Turbine Building Area 9, Rev. E18

A-5

E333, Cable Spreading Room Raceway Layout, Rev. E21
E743, Schematic Diagram Instrument Loop, Alternate Shutdown System-Suppression Pool Water Level & Temperature Monitoring, Rev. E1
E5002, Schematic Diagram Primary Containment Isolation System, Rev. E13
E5004, Electrical Schematic Diagram Containment Spray MOVs, Rev. E13
E5005, Electrical Schematic Diagram Residual Heat Removal System MOVs, Rev. E11
E5011, Electrical Schematic Diagram Reactor Shutdown Cooling System Isolation MOV, E7
E5014, Schematic Diagram, Steam Supply Line Isolation Valve MO1301-17, Rev. E8
E5015, Electrical Schematic Diagram, RCIC System MOVs, Rev. E11
E5016, Schematic Diagram Steam Supply Line Isolation Valve MO1301-16, Rev. E10
E5017, Schematic Diagram, Pump Suction Condensate Storage Tank, Rev. E4
E5026, Schematic Diagram RHR Pump Suction Valves MO1001-7A & MO1001-7B, Rev. E0
E5027, Schematic Diagram RHR System Valves MO1001-7C & MO1001-7D, Rev. E0
E5031, Schematic Diagram RCIC System Valves MO1301-25 & MO1301-26, Rev. E0
E5037, Schematic Diagram HPCI System Valves MO2301-3 & MO2301-8, Rev. E0
E5039, Schematic Diagram HPCI System Valve MO2301-5, Rev. E0
E5040, Schematic Diagram HPCI System Valve MO2301-6, Rev. E0
E5041, Schematic Diagram HPCI System Valve MO2301-9, Rev. E0
E5042, Schematic Diagram HPCI System Valve MO2301-4, Rev. E0
E5045, Schematic Diagram Core Spray System Valves MO1400-3A & MO1400-3B, Rev. E0
E5047, Schematic Diagram Core Spray System Valves Mo1400-24A & MO1400-24B, Rev. E0
E5048, Schematic Diagram Core Spray System Valve MO1400-25A, Rev. E0
E5052, Schematic Diagram RHR System Pumps P203A, P203B, P203C & P203D, Rev. E0
E5053, Schematic Diagram Core Spray System Pumps P215A & P215B, Rev. E0
F33, Schematic Diagram 4160 V System Diesel Generator Lockout Relay, Rev. E2
MIN42-5, Elementary Diagram Primary Containment Isolation System, Rev. E4
M1R4-10, Elementary Diagram Automatic Blowdown System, Rev. E23
M1R8-2, Elementary Diagram Automatic Blowdown System, Rev. E9
M6-21-11, Sh.1, Wiring Diagram Diesel Generator "A" Alco Alternator, Rev. 17
M6-20-9, Sh.1, Schematic Diagram Diesel Generator "A" X107A Auxiliary Control Equipment, Rev. 15
M6-22-14, Sh.1, Schematic Diagram Diesel Generator "A" x107A Engine Control, Rev. 32
M218, Fire Protection System, Sh. 1, Rev. 52; Sh. 2, Rev. 45; Sh. 3, Rev. 46
M287, Plant Ventilation Diagram, Rev. E37
M288, Turbine Building Air Flow Diagram, Rev. E14
M302, HVAC Turbine Building Intermediate Floor El. 37'-0", Rev. E5
M327, HVAC Cable Spreading, Computer Room, Access Control at El. 23'-0", Rev. E5

Piping and Instrumentation Drawings

M203, Sh. 1, Main Steam System, Rev. E44
M203, Sh. 2, Main Steam System, Rev. E32
M203, Sh. 3, Main Steam System, Rev. E43
M212, Sh. 1, Service Water System, Rev. 88
M215, Sh. 1, Cooling Water System - Reactor Building, Rev. 51
M215, Sh. 2, Cooling Water System - Reactor Building, Rev. 48
M241, Sh. 1, Residual Heat Removal System, Rev. 82

A-6

M241, Sh. 2, Residual Heat Removal System, Rev. 47
M242, Core Spray System, Rev. E50
M243, HPCI System, Rev. 51
M244, Sh. 1, HPCI System, Rev. E30
M245, RCIC System, Rev. E35
M246, Sh. 1, RCIC System, Rev. 32
M252, Sh. 1, Nuclear Boiler, Rev. 63
M252, Sh. 2, Nuclear Boiler, Rev. 61
M253, Sh. 1, Nuclear Boiler Vessel Instrumentation, Rev. E42
M253, Sh. 2, Nuclear Boiler Vessel Instrumentation, Rev. E28

Vendor Manuals

V-0298, Cardox Fire Extinguishing Equipment, Rev. 6
V-0401, Automatic Dry Chemical Fire Protection Systems, Rev. 3
V-0636, Cable Spreading Room Halon Control Panel, Rev. 4
V-1032, Emergency Lighting Catalog, Rev. 4

Plant Design Changes

PDC No. 98-36, MO1001-47 and 50 Breaker Configuration Modification, Approved
May 14, 1999

System Health Reports

4KV, System Health Report, 1st Quarter 2006
480VAC, System Health Report, 1st Quarter 2006
Station DC and Battery System, 1st Quarter 2006
120VAC System 1st Quarter 2006
Program Health Report, Fire Protection, 1st Quarter 2006
Fire Protection System Health Report, 1st Quarter 2006
Emergency Lighting System Health Report, 1st Quarter 2006

Fire Drills and Critique

03/03/04, 'A' Battery Room
03/16/05, Cable Spreading Room
11/18/05, 'B' Switchgear Room
01/26/06, 'A' Battery Room
02/15/06, 'B' EDG Room
04/28/06, PNPS/Plymouth Fire Department Combined Drill

Fire Brigade Training

C-FB-02-04-12, Electricity and the Fire Fighter, Rev. 2
C-FB-02-05-02, Plant Smoke and Fire Control, Rev. 1
C-FB-02-05-03, Plant Communications, Rev. 3

A-7

Fire Brigade Training Matrix, 2006
Fire Watch Training Matrix, 2005-2006
Form S-5, PNPS Fire Brigade Qualification Record, Rev. 5
Training, Control of Hot Work and Ignition Sources, Rev. 1

Operator Safe Shutdown Training

O-RQ-03-02-02, Instructional Module - Special Fire Events, Rev. 2

Miscellaneous Documents

Cable Designations List, July 24, 2006
Hot Work Permits 06-55, 06-56, 06-57
Maintenance Rule Action Plan, Emergency Lighting, Rev. 3
Transient Combustible Evaluations 06-13 and 06-14

Condition Reports

2003-02675	2004-02943	2006-01382
2003-02900	2005-00820	2006-02367
2003-03480	2005-02681	2006-02795
2003-03539	2005-02895	2006-02818
2004-01528	2005-03055	2006-02950
2004-01555	2005-03900	2006-02970
2004-01573	2005-04128	2006-02971
2004-01641	2005-04139	
2004-01861	2006-00732	

Work Orders

P9700223
P9700235
P9800648
P9800652
P9800654
P9800664
P9800676
P9800678
P9800679
P9800660

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
CO ₂	Carbon Dioxide
CR	Condition Report
DRS	Division of Reactor Safety
FA	Fire Area
FHA	Fire Hazards Analysis
FPP	Fire Protection Program
FSAR	Final Safety Analysis Report
FZ	Fire Zone
IP	Inspection Procedure
IPE	Individual Plant Examination
IPEEE	Individual Plant Examination of External Events
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
PAR	Publicly Available Records
P&ID	Piping and Instrumentation Drawing
PNPS	Pilgrim Nuclear Power Station
RHR	Residual Heat Removal
SCBA	Self-Contained Breathing Apparatus
SER	Safety Evaluation Report