



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

May 13, 2011

Mr. Robert G. Smith
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 TEMPORARY INSTRUCTION
2515/183 INSPECTION REPORT 05000293/2011009

Dear Mr. Smith:

On April 15, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Pilgrim Nuclear Power Station (PNPS), using Temporary Instruction 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event." The enclosed inspection report documents the inspection results which were discussed on April 15, 2011, with you and other members of your staff.

The objective of this inspection was to promptly assess the capabilities of Pilgrim to respond to extraordinary consequences similar to those that have recently occurred at the Japanese Fukushima Daiichi Nuclear Station. The results from this inspection, along with the results from this inspection performed at other operating commercial nuclear plants in the United States will be used to evaluate the United States nuclear industry's readiness to safely respond to similar events. These results will also help the NRC to determine if additional regulatory actions are warranted.

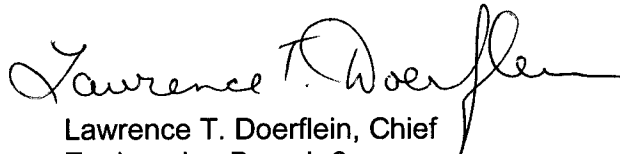
All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report. You are not required to respond to this letter.

R. Smith

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Sincerely,


Lawrence T. Doerflein, Chief
Engineering Branch 2
Division of Reactor Safety

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

Enclosure: Inspection Report No. 05000293/2011009

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Sincerely,

/RA/

Lawrence T. Doerflein, Chief
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-293

License No.: DPR-35

Report No.: 05000293/2011009

Licensee: Entergy Nuclear Operations, Inc.

Facility: Pilgrim Nuclear Power Station (PNPS)

Location: 600 Rocky Hill Road
Plymouth, MA 02360

Inspection Period: April 11 - 15, 2011

Inspectors: J. Richmond, Senior Reactor Inspector, Division of Reactor Safety

Approved By: Lawrence T. Doerflein, Chief
Engineering Branch 2
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000293/2011009; 04/11/2011 – 04/15/2011; Pilgrim Nuclear Power Station; Temporary Instruction 2515/183 - Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event.

This report covers an announced Temporary Instruction (TI) inspection. The inspection was conducted by a senior region based inspector. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

INSPECTION SCOPE

The intent of the TI is to provide a broad overview of the industry's preparedness for events that may exceed the current design basis for a plant. The focus of the TI was on (1) assessing the licensee's capability to mitigate consequences from large fires or explosions on site, (2) assessing the licensee's capability to mitigate station blackout (SBO) conditions, (3) assessing the licensee's capability to mitigate internal and external flooding events accounted for by the station's design, and (4) assessing the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. If necessary, a more specific followup inspection will be performed at a later date.

INSPECTION RESULTS

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats, committed to as part of NRC Security Order Section B.5.b issued February 25, 2002, and severe accident management guidelines and as required by Title 10 of the Code of Federal Regulations (10 CFR) 50.54(hh). Use Inspection Procedure (IP) 71111.05T, "Fire Protection (Triennial)," Section 02.03 and 03.03 as a guideline. If IP 71111.05T was recently performed at the facility the inspector should review the inspection results and findings to identify any other potential areas of inspection. Particular emphasis should be placed on strategies related to the spent fuel pool. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe what the licensee did to test or inspect equipment.
<p>a. Verify through test or inspection that equipment is available and functional. Active equipment shall be tested and passive equipment shall be walked down and inspected. It is not expected that permanently installed equipment that is tested under an existing regulatory testing program be retested.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>Entergy performed equipment inspections, inventory of necessary tools and materials, and an operational test of a portable diesel powered pump to verify B.5.b equipment readiness and ensure that the equipment was available and functional. Entergy walked down equipment storage and staging locations to verify the adequacy of the required inventories. In addition, implementing procedure walkdowns were performed to verify that necessary equipment, tools, and materials specified for use within the procedures were available.</p>
	<p>Describe inspector actions taken to confirm equipment readiness (e.g., observed a test, reviewed test results, discussed actions, reviewed records, etc.).</p>
	<p>The inspector evaluated the adequacy of installed and portable equipment staged explicitly for implementation of the mitigation strategies. The types of equipment examined included: interior fire water supply piping and hose stations; portable pump and associated suction and discharge hoses, adapters, and tools; portable DC power supplies; portable radios and communications devices; and equipment lockers and associated tools. The inspector's review included field verification and inventory checks of standby and staged equipment, and compatibility of the portable equipment with installed systems. In addition, the inspector evaluated the staging and storage locations of B.5.b related equipment to ensure the survivability and availability of equipment. The inspector also reviewed test results of the portable diesel powered pump. The inspector observed a walk-through demonstration of selected mitigating strategies to</p>

	<p>independently evaluate the adequacy and functionality of the available equipment, and interviewed licensed and non-licensed operators to further assess equipment functionality.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>Entergy did not identify any deficiencies of significance as part of their equipment checks. Entergy identified several minor issues which they entered into their correction action program.</p> <p>One minor deficiency was identified by the inspector. The portable DC power supplies consisted of a 12 volt lead acid battery and a DC to DC converter. Based on a previous NRC observation, CR-PNP-2011-00341 documented a corrective action to create a preventive maintenance task for the battery. During this inspection, Entergy added an additional action to evaluate the addition of a functional test for the battery and DC to DC converter. The inspector determined this was a minor issue because there was a reasonable expectation of functionality for the portable DC power supplies based on battery voltage checks performed during the inspection period and pre-installation checks performed on the DC to DC converters. The inspector verified these checks by direct observation and interview. Entergy entered this issue into their corrective action program as CA-24 to CR-PNP-2011-00341.</p> <p>Based on the results of the reviews, walkdowns, and interviews described above, the inspector concluded that the required equipment was available and functional.</p>
Licensee Action	Describe the licensee's actions to verify that procedures are in place and can be executed (e.g. walkdowns, demonstrations, tests, etc.)

<p>b. Verify through walkdowns or demonstration that procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) are in place and are executable. Licensees may choose not to connect or operate permanently installed equipment during this verification.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>Entergy validated procedure adequacy by using operators or engineers to perform B.5.b procedure reviews and walkdown demonstrations of selected B.5.b procedures. In addition, selected procedures were actually performed to verify both equipment readiness and procedure adequacy, such as equipment inventory and inspection, emergency alarms and radios testing, and portable pump functional testing. The B.5.b and severe accident management guideline (SAMG) procedures were verified current and staged in the appropriate locations.</p>
	<p>Describe inspector actions and the sample strategies reviewed. Assess whether procedures were in place and could be used as intended.</p>
	<p>The inspector independently evaluated selected Entergy B.5.b mitigating strategy implementing procedures to verify procedure adequacy. In addition, the inspector reviewed the interface or transition between the Emergency Operating Procedures (EOPs), off-normal procedures, and the mitigating strategy procedures. The inspector performed walkdowns with licensed and non-licensed operators and other Entergy staff to assess: the adequacy and completeness of the procedures; familiarity of operators with the procedure objectives and specific guidance; staging and compatibility of equipment; and the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios.</p> <p>As a result of the NRC inspection, one finding of very low safety significance was identified, involving procedural deficiencies that challenged a spent fuel pool cooling strategy. Entergy entered this issue into their corrective action program as CR-PNP-2011-01505 and CR-PNP 2011-01075 CA-24. Details on this finding will be documented in Pilgrim Inspection Report 05000293/2011011.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
	<p>Entergy did not identify any deficiencies of significance as part of their check to verify that procedures were in-place and executable. Entergy identified several minor issues which they entered into their correction action program.</p>

	<p>Entergy immediately evaluated the NRC identified finding, briefed operations personnel, and, based on the updated briefing information, verified the strategies could be reasonably implemented within the credited time limits. The inspector reviewed Entergy's immediate and proposed actions, including their assessment and prioritization, and concluded they were reasonable.</p> <p>Based on the results of the reviews and walkdowns described above, with the exception of one finding to be documented in a separate report, the inspector determined that the procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) were in place and were executable.</p>
<p>Licensee Action</p>	<p>Describe the licensee's actions and conclusions regarding training and qualifications of operators and support staff.</p>
<p>c. Verify the training and qualifications of operators and the support staff needed to implement the procedures and work instructions are current for activities related to Security Order Section B.5.b and severe accident management guidelines as required by 10 CFR 50.54 (hh).</p>	<p>Entergy audited training records for operations, security, fire fighters, engineering, and emergency response organization (ERO) personnel to verify that all staff members within a designated group were current with their initial and requalification training requirements. In addition, Entergy also verified that there was a sufficient number of trained personnel on-site and on each operating shift to implement the severe accident management guidelines. Entergy also verified that off-site local fire department members were current in their training.</p> <p>Describe inspector actions and the sample strategies reviewed to assess training and qualifications of operators and support staff.</p> <p>The inspector interviewed selected licensed and non-licensed operators, and non-operations plant staff to evaluate the adequacy of their training and the completeness of Entergy's training audit. In addition, the inspector interviewed a licensed operator simulator instructor regarding simulator and job performance measure training scope and schedules.</p>

	<p>Discuss general results including corrective actions by licensee.</p>
	<p>Entergy did not identify any training deficiencies of significance.</p> <p>Based on the inspector's review of formal training, interviews, and observations of plant staff during walkdowns of mitigating strategies in the field, the inspector concluded that the overall B.5.b training was appropriate and consistent with industry guidelines.</p>
<p>Licensee Action</p>	<p>Describe the licensee's actions and conclusions regarding applicable agreements and contracts are in place.</p>
<p>d. Verify that any applicable agreements and contracts are in place and are capable of meeting the conditions needed to mitigate the consequences of these events.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>Entergy verified the agreements with off-site local fire departments were in place and active. In addition, Entergy also verified that required off-site equipment was available.</p> <p>For a sample of mitigating strategies involving contracts or agreements with offsite entities, describe inspector actions to confirm agreements and contracts are in place and current (e.g., confirm that offsite fire assistance agreement is in place and current).</p> <p>The inspector verified through interviews with plant staff that necessary agreements were in-place and current with off-site fire departments, and that equipment which was expected to be available to implement the mitigating strategies was, in fact, available.</p> <p>Discuss general results including corrective actions by licensee.</p>

	<p>Entergy did not identify any deficiencies of significance.</p> <p>The inspector concluded that sufficient agreements and contracts were in place and capable of meeting the conditions necessary to mitigate the consequences of B.5.b events, as required by Entergy's licensing and design basis.</p>
<p>Licensee Action</p>	<p>Document the corrective action report number and briefly summarize problems noted by the licensee that have significant potential to prevent the success of any existing mitigating strategy.</p>
<p>e. Review any open corrective action documents to assess problems with mitigating strategy implementation identified by the licensee. Assess the impact of the problem on the mitigating capability and the remaining capability that is not impacted.</p>	<p>The inspector reviewed numerous corrective action documents during this inspection, which are listed in the Attachment to this report. In addition, NRC Resident Inspectors conduct daily reviews of newly issued condition reports. The NRC Senior Resident Inspector and the NRC TI-183 inspector discussed whether potential deficiencies, identified within Entergy's corrective action program, could result in a significant adverse impact to mitigating strategy implementation. In addition, the inspector reviewed all condition reports identified by Entergy during their recent self assessments of B.5.b mitigating strategies. The inspector evaluated Entergy's immediate corrective actions for the associated condition reports, and concluded that the actions appeared to be reasonable.</p> <p>As discussed above in section 03.01.b, the inspector identified one finding of very low safety significance. No other significant impacts were identified.</p>

03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63, "Loss of All Alternating Current Power," and station design, is functional and valid. Refer to TI 2515/120, "Inspection of Implementation of Station Blackout Rule Multi-Plant Action Item A-22" as a guideline. It is not intended that TI 2515/120 be completely reinspected. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe the licensee's actions to verify the adequacy of equipment needed to mitigate an SBO event.
<p>a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>Entergy conducted walkdowns of the SBO diesel generator (DG), SBO control stations, associated switchgear, and related equipment to verify the equipment was adequate and properly staged. Entergy also reviewed associated procedures to identify any necessary temporary equipment, and verified that such items were available and pre-staged.</p>
	<p>Describe inspector actions to verify equipment is available and useable.</p>
	<p>The inspector independently walked down the SBO DG, control stations, associated switchgear, and station batteries to independently verify material conditions and equipment readiness. The walkdowns were conducted with licensed and non-licensed operators, an electrical design engineer, and the responsible system engineer. The inspector also interviewed operations and engineering personnel regarding typical functional test results and reviewed selected test results to further assess equipment availability and readiness. In addition, the inspector reviewed DC system design calculations to verify that the station battery capacity discharge test acceptance criteria included necessary SBO loads and load durations.</p>
	<p>Discuss general results including corrective actions by licensee.</p>

Entergy did not identify any deficiencies of significance as part of their equipment checks.

One minor deficiency was identified by the inspector. Entergy had not implemented industry standard or vendor recommendations for battery performance discharge testing on the SBO switchgear 125 volt battery since initial installation to 2005. The inspector determined this was a minor issue because there was a reasonable expectation of functionality for the battery because a factory acceptance test discharge had been performed on 11/22/05 prior to initial installation, float current was checked weekly, and individual cell voltages and intercell terminations were checked quarterly. IEEE 1106-2005, "Recommended Practice for Installation, Maintenance, Testing, and Replacement of Vented Nickel-Cadmium Batteries for Stationary Applications," recommended a performance test discharge within the first two years of service and every five years thereafter. The vendor service life for this battery was 20 years, and the factory acceptance test satisfied the IEEE recommendations. Since a performance test was only a few months overdue, and in this instance, the battery was within the first six years of a 20 year service life, and did not have any identified degraded trends, the inspector concluded that a performance test would be reasonably expected to pass. The inspector walked down the battery to independently verify material condition, reviewed the results from the last four quarterly battery checks and the factory acceptance test results, and interviewed the system engineer to assess battery performance trends. Entergy entered this issue into their corrective action program as CR-PNP-2011-01548 and CR-PNP-2011-01075 CA-17.

The inspector identified a beyond design basis and beyond licensing basis vulnerability, in that the SBO DG cooling radiator is potentially susceptible to damage from high wind generated flying debris. Entergy entered this issue into their corrective action program as CR-PNP-2011-01503 and CR-PNP-2011-01075 CA-11.

The inspector identified a beyond design basis and beyond licensing basis vulnerability, in that the SBO DG switchgear battery was not restrained within a battery rack and was potentially susceptible to movement during a seismic event. Entergy entered this issue into their corrective action program as CR-PNP-2011-01551 and CR-PNP-2011-01075 CA-18.

Licensee Action	Describe the licensee's actions to verify the capability to mitigate an SBO event.
<p>b. Demonstrate through walkdowns that procedures for response to an SBO are executable.</p>	<p>Entergy performed table top demonstration reviews and walkdowns of procedures required for response to a SBO event to verify that the procedures were executable. In addition, Entergy also verified that licensed operator training included appropriate training tasks for SBO activities in initial and requalification training.</p>
	<p>Describe inspector actions to assess whether procedures were in place and could be used as intended.</p>
	<p>The inspector reviewed SBO related procedures, including DC load shedding procedures, and observed a table top demonstration of plant response to an SBO (e.g., SBO DG starting and loading) performed by licensed operators. The inspector's review also included licensed operator job performance measures for local and remote start and operation of the SBO DG. In addition, the inspector interviewed a licensed operator simulator instructor and reviewed crew critical task time results for simulator scenarios to independently verify that the SBO DG could be started and loaded within the design basis time of 10 minutes.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
	<p>Entergy did not identify any deficiencies of significance.</p> <p>Based on the results of the reviews, walkdowns, and interviews described above, the inspector found the procedures for an SBO were executable.</p>

03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design. Refer to IP 71111.01, "Adverse Weather Protection," Section 02.04, "Evaluate Readiness to Cope with External Flooding" as a guideline. The inspection should include, but not be limited to, an assessment of any licensee actions to verify through walkdowns and inspections that all required materials and equipment are adequate and properly staged. These walkdowns and inspections shall include verification that accessible doors, barriers, and penetration seals are functional.

Licensee Action	Describe the licensee's actions to verify the capability to mitigate existing design basis flooding events.
<p>a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>Entergy walked down and inspected accessible flood protection barriers, penetration seals, and room or sump high level alarm instruments that were credited or relied upon to mitigate internal and external flooding events. The walkdowns and inspections included breakwaters, jetties, and revetments. In addition, Entergy reviewed procedures used to prepare for severe weather or inspect plant structures post severe weather.</p>
	<p>Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.</p>
	<p>The inspector walked down selected plant areas to independently assess the adequacy of flood protection barriers. The walkdown was conducted with a structural engineer and utilized a structural monitoring surveillance procedure table which listed flood barriers routinely inspected. Selected plant areas included reactor building emergency core cooling system (ECCS) pump rooms, reactor core isolation cooling (RCIC) room, and control rod drive (CRD) room; turbine building 4kV switchgear and battery rooms; EDG rooms; intake structure, including service water pump rooms, and diesel driven fire water pump room; and the SBO DG enclosures.</p>
	<p>Discuss general results including corrective actions by licensee.</p>

	<p>Entergy did not identify any deficiencies of significance.</p> <p>The inspector identified one minor deficiency, in that piping penetrations between the torus room and ECCS rooms, which were credited flood barriers, had not been included in Entergy's flood barrier structural monitoring surveillances. Entergy performed an initial review which determined that all of the pipe penetrations were equipped with water tight seal assemblies and that previous inspection of similar seals in other plant areas had not identified any significant degraded trends. Entergy entered this issue into their corrective action program as CR-PNP-2011-01530 and CR-PNP-2011-01075 CA-20. The inspector reviewed the condition reports, and determined that Entergy's initial responses, including their assessment and prioritization, were appropriate.</p> <p>Based on the results of the reviews and walkdowns described above, the inspector concluded that Entergy's capabilities to mitigate internal and external flood events adequately satisfied design basis requirements. On a sampling basis, the inspector also verified that accessible doors, barriers, and penetration seals were functional.</p>
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03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. Assess the licensee's development of any new mitigating strategies for identified vulnerabilities (e.g., entered it in to the corrective action program and any immediate actions taken). As a minimum, the licensee should have performed walkdowns and inspections of important equipment (permanent and temporary) such as storage tanks, plant water intake structures, and fire and flood response equipment; and developed mitigating strategies to cope with the loss of that important function. Use IP 71111.21, "Component Design Basis Inspection," Appendix 3, "Component Walkdown Considerations," as a guideline to assess the thoroughness of the licensee's walkdowns and inspections.

<p>Licensee Action</p>	<p>Describe the licensee's actions to assess the potential impact of seismic events on the availability of equipment used in fire and flooding mitigation strategies.</p>
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<p>a. Verify through walkdowns that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>Entergy identified equipment utilized or required for mitigation of fire and flood events, including both permanent and temporary equipment, conducted walkdowns, and documented the results. Prior to the walkdowns, guidelines were established to govern the conduct of walkdowns and inspections. Entergy determined whether the system, structure, and component (SSC) was seismically qualified or seismically rugged. For non-seismically rugged SSCs, Entergy evaluated whether a mitigating strategy was needed to perform the function after a safe shutdown earthquake.</p>
	<p>Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.</p>
	<p>The inspector reviewed the scope of Entergy's walkdowns, and the results of Entergy's inspections and assessments to evaluate the thoroughness of Entergy's actions. The inspector walked down selected risk significant plant areas to independently assess beyond design basis seismic vulnerabilities to equipment needed to mitigate fire and flood events. This equipment included, but was not limited to:</p> <ul style="list-style-type: none"> • B.5.b contingency response equipment; • portions of the installed fire protection and suppression equipment in various plant areas; • diesel and electric fire pumps and their controls; and • watertight doors, roof hatches and floor plugs at the plant's intake structure. <p>Based on the results of the reviews and walkdowns described above, the inspector concluded that Entergy satisfied the current licensing and design bases for B.5.b, fire protection, and flooding.</p>
	<p>Discuss general results including corrective actions by licensee. Briefly summarize any new mitigating strategies identified by the licensee as a result of their reviews.</p>

	<p>Entergy did not identify any deficiencies of significance.</p> <p>The inspector concluded Entergy's reviews were comprehensive. The inspector noted that the majority of the flood protection SSCs were either seismically rugged or seismically qualified. In reviewing these beyond design basis seismic interactions with fire or flood mitigation SSCs, Entergy identified several potential enhancements that could improve fire fighting capabilities following an earthquake. The identified seismic vulnerabilities, including storage locations and fire headers, were entered into the corrective action program. Resolution and/or mitigating strategies for the identified vulnerabilities were under evaluation.</p>
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Meetings

4OA6 Exit Meeting

The inspector presented the inspection results to Mr. R. Smith and other members of Entergy management at the conclusion of the inspection on April 15, 2011. The inspectors asked Entergy whether any materials examined during the inspection should be considered proprietary. The inspectors confirmed that any proprietary information was returned to the licensee.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

R. Pace, Supervisor Mechanical Design
P. Doody, Mechanical Design Engineer
M. McDonnell, Assistant Operations Manager
J. Macdonald, Assistant Operations Manager-Shift
J. Lynch, Site Licensing Manager
D. Noyes, Operations Manager
J. Bracken, Senior Reactor Operator
J. Fratassio, Senior Reactor Operator
D. Berkland, Electrical Design Engineer
B. Ahern, System Engineer
S. Burke, Fire Protection Engineer
R. Berne, Licensing Engineer

NRC Personnel

C. Cahill, Senior Reactor Analyst, Division of Reactor Safety
W. Cook, Senior Reactor Analyst, Division of Reactor Safety

Commonwealth of Massachusetts (Observers)

John Giarrusso, Jr., Planning and Preparedness Division Manager, Massachusetts
Suzanne Condon, Associate Commissioner, Department of Public Health, Massachusetts

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events

Procedures:

2.1.26, Inventory of Alternate Shutdown and EOP Support Tools and Materials, Rev. 36
2.4.31, Reactor Basin and/or Spent Fuel Pool Draindown, Rev. 19

- 2.4.52, Loss of all Fire Suppression Pumps or Loss of Redundancy in the Fire Water Supply System, Rev. 25
- 5.3.3, Loss of All Service Water, Rev. 26
- 5.3.14, Security Incidents, Rev. 39
- 5.3.21, Bypassing Selected Interlocks, Rev. 29
- 5.3.25, Primary Containment Fill, Rev. 16
- 5.3.26, Reactor Pressure Vessel Injection During Emergencies, Rev. 25
- 5.3.36, Extensive Damage Mitigation Guidelines (EDMG), Rev. 3
- 5.4.6, Primary Containment Venting and Purging under Emergency Conditions, Rev. 44
- 8.A.13, Plant Emergency Alarms and Radio Test, Rev. 20
- 8.B.1, Fire Pump Test, Rev. 87
- EMG-100, Emergency Management Guideline, Rev. 2

Drawings:

- M-212, Service Water System, Sh. 1, Rev. 93
- M-218, Fire Protection System, Sh. 1, Rev. 59
- M-227, Containment Atmospheric Control, Sh. 1, Rev. 59
- M-241, Residual Heat Removal System, Sh. 1, Rev. 86
- M-245, RCIC, Rev. E35
- M-246, RCIC Turbine, Sh. 1, Rev. 32
- M-293, Standby Gas Treatment System, Rev. 27

Calculations and Evaluations:

- FP-53, Calculation of Mitigation Strategy, Rev. 1
- M-588, Fuel Pool Decay and Heat-up Times, Rev. 1
- M-907, Refueling Outage Decay Heat Evaluation, Rev. 0

Condition Reports: (* NRC identified during this inspection)

- CR-PNP-2008-00361, Found Battery on Portable Battery Cart Deteriorated, 1/30/08
- CR-PNP-2008-00675, Time Line for Response Needs to be Validated Formally, 2/27/08
- CR-PNP-2011-00869, Review Previous NRC Inspection Findings and Observations to Ensure all Issues are Complete, 2/28/11
- CR-PNP-2011-01075, Self Assessment for Japanese Reactor Damage Event, 3/15/11
- CR-PNP-2011-01179, Correct EOP, SAG, and EMG Procedures, and EP Surveillances Administrative Discrepancies, 3/21/11
- CR-PNP-2011-01199, Evaluate P-159 Pump and Diesel Driven Air Compressor Fuel Management Strategy, 3/22/11
- CR-PNP-2011-01206, Track Various Administrative Actions to Completion, 3/23/11
- CR-PNP-2011-01491, During Manual Operation of Primary Containment Venting, SGTS was Assumed to be Isolated, 4/12/11
- CR-PNP-2011-01492, PM for P-159 Called out Incorrect Fuel Oil and Lube Oil Filters, 4/12/11
- *CR-PNP-2011-01505, NRC Inspection Identified Enhancement Opportunities, 4/13/11
- *CR-PNP-2011-01684, TIP Room Mitigating Strategies Observations, 4/20/11
- CR-PNP-2008-00661, Revise Procedure 5.3.36 to Include Issues Identified by NRC, 2/26/08

*CR-PNP-2011-01414, Review 5.3.36 and Evaluate Permanent and Temporary Component Labeling, 4/06/11
CR-PNP-2008-00654, Revise Calculation FP-53, 2/26/08
CR-PNP-2010-02639, Review PM Needs for Battery Carts, 7/29/10
CR-PNP-2008-00663, Verify Strategy Meets Intent of NEI 06-12, 2/26/08
CR-PNP-2011-01313, Procedure 2.1.26 Performed on 2-28-11 did not Document Control Room Log Entry for Missing Gloves, 3/31/11
CR-PNP-2011-01415, Evaluate P-159 Fuel Makeup Strategy, 4/06/11
CR-PNP-2011-01416, Evaluate P-159 Suction Items, 4/06/11
*CR-PNP-2011-01646, Review Inventory Procedure 2.1.26 of Alternate Shutdown and EOP Support Tools and Materials, 4/19/11

Other:

Fuel Pool Cooling System Health Report, 4th Quarter 2010
NEI 06-12, B.5.b Phase 2 & 3 Submittal Guideline, Rev. 2
NRC TI 2515/171, Verification of Site Specific Implementation of B.5.b Phase 2 and 3 Mitigating Strategies, Rev. 1
Pilgrim Facility Operating License No. DPR-35, Rev. 224
RCIC System Health Report, 1st Quarter 2011
UFSAR 10.4, Fuel Pool Cooling and Cleanup System, Rev. 23

03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions

Procedures:

2.2.146, Station Blackout Diesel Generator, Rev. 41
5.3.31, Station Blackout, Rev. 14
5.3.11, Loss of Essential DC Bus D16 or D4 and D36, Rev. 43
3.M.3-25.8, A-8 Control Power Battery Quarterly Inspection, Rev. 4
3.M.3-25.10, Weekly Battery Pilot Cell and Charger Inspection, Rev. 13
5.3.12, Loss of Essential DC Bus D17 or D5 and D37, Rev. 39
2.4.16, Distribution Alignment Electrical System Malfunctions, Rev. 37

Completed Tests:

WO 05108463, 8.9.8.1 Battery Service Test Results, 4/14/07
WO 05108435, 8.9.8.3 Battery Service Test Results, 5/1/07
WO 52243036, 3.M.3-25.8 A-8 Control Power Battery Quarterly Inspection, 5/7/10
WO 52258377, 3.M.3-25.8 A-8 Control Power Battery Quarterly Inspection, 8/4/10
WO 52275979, 3.M.3-25.8 A-8 Control Power Battery Quarterly Inspection, 11/4/10
WO 52294169, 3.M.3-25.8 A-8 Control Power Battery Quarterly Inspection, 2/2/11
WO 52330544, 3.M.3-25.10, Weekly Battery Pilot Cell and Charger Inspection, 3/17/11
MR 01124050, A-8 Battery Factory Acceptance Discharge Test, 12/1/05

Drawings:

17322-M-SAM-13-0059-003, SBO A-8 Switchgear Wiring Diagram, Rev. E2
E-1, Electrical Distribution Single Line Diagram, Sh. 1, Rev. 21
E-13, 125 and 250 Vdc Relay & Meter Diagram, Rev. E80
E-17, 4160 Meter and Relay Diagram, Rev. 5

Calculations and Evaluations:

00025-0042-001, Battery Load Profile, Rev. 1
TDBD-115, Station Blackout Design Basis Document, Rev. 1

Condition Reports:

CR-PNP-2010-04443, Review Leakage Modeling During an SBO Event, 12/20/10
*CR-PNP-2011-00341, CA 24, Evaluate PM Needs for DC-DC Converter, and Check Wire Terminations, 4/15/11
CR-PNP-2011-01075, Self Assessment for Japanese Reactor Damage Event, 3/15/11
CR-PNP-2011-01326, Evaluate Susceptibility to Adverse Weather Effects on Venting Function of EDG Fuel Storage Tanks, 3/31/11
*CR-PNP-2011-01503, Walkdown of SBO EDG Identified Potential Vulnerability to High Wind External Event, 4/13/11
*CR-PNP-2011-01506, Battery Walkdown Identified Several Terminal Connects with Signs of Corrosion on the 250Vdc Battery D3, 4/13/11
*CR-PNP-2011-01548, A-8 125 Vdc Battery does not have Periodic Load Testing, 4/15/11
*CR-PNP-2011-01550, Civil Design Engineering Should Consider the Robustness of the SBO Diesel Battery Stand, 4/15/11
*CR-PNP-2011-01551, Robustness of SBO Diesel Battery Stand should be Reviewed, 4/15/11
CR-PNP-2011-01305, Procedure Enhancements for 5.3.31, 5.3.36, 2.2.146, & 5.3.35.1, 3/30/11
CR-PNP-2010-02268, C190 Panel Power Light Broke Socket, 6/28/10
CR-PNP-2011-00217, SBO DG Manual Load Test Discrepancy, 1/17/11
CR-PNP-2010-02924, Protective Relay Found Out of Calibration, 8/23/10

Other:

DC System Health Report, 4th Quarter 2010
IEEE 1106, Maintenance of Nickel Cadmium Batteries, 2005
JPM-290-01, Start the SBO Diesel Generator, Rev. 6
JPM-290-02, Local Operation of SBO DG during Station Blackout, Rev. 4
PDC 86-56B, SBO DG Installation Modification, Rev. 0
SBO Diesel Generator System Health Report, 4th Quarter 2010
UFSAR 8.10, Blackout AC Power Source, Rev. 23
V-0541, SBO Diesel Generator Vendor Manual, Rev. 12

03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design

Procedures:

2.1.37, Coastal Storm Preparations and Actions, Rev. 28
2.1.42, Operation during Severe Weather, Rev. 10
3.M.5-3, Water Control Structures Monitoring Procedure, Rev. 2
5.2.2, High Winds (Hurricane), Rev. 31
8.C.42, Sub-compartment Barrier Control Surveillance, Rev. 22
EN-DC-150, Condition Monitoring of Maintenance Rule Structures, Rev. 1

Calculations and Evaluations:

IPEEE 5.2, Floods, Rev. 0

Condition Reports:

CR-PNP-2011-01075, Self Assessment for Japanese Reactor Damage Event, 3/15/11
CR-PNP-2011-01163, Revise EP-AD-601 to Reflect Current Document and Remove Reference to Superseded Documents, 3/21/11
CR-PNP-2011-01255, Walkdown Results for Breakwaters, Jetties, and Revetments Identified Rock Displacements on the Jetty Tops, 3/28/11
CR-PNP-2011-01392, Debris Found in EDG Building Sump Floor Drain System, 4/5/11
CR-PNP-2011-01394, Main Equipment Hatchway at RB El. 117 not Normally Closed, 4/5/11
CR-PNP-2011-01530*, Flood Seals (Elastomers) should be Inspected Periodically, 4/14/11

Other:

PMID 50077725, 3.M.5-3 Main Breakwater 5-Year Survey, Active
PMID 50079208, 3.M.5-3 Wind Speed Review for Breakwater Monitoring, Active
UFSAR 2.4.4, Storm Flooding Protection, Rev. 25

03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events

Procedures:

5.2.1, Earthquake, Rev. 43

Condition Reports:

CR-PNP-2011-01075, Self Assessment for Japanese Reactor Damage Event, 3/15/11
 LO-WTPNP-2011-00082 CA 55, Develop a Flooding Design Basis Document, 4/6/11
 LO-WTPNP-2011-00082 CA 56, Analyze Equipment Drain Piping in CRD Quad to Determine it
 will Remain Intact During an Earthquake, 4/6/11
 LO-WTPNP-2011-00082 CA 54, Evaluate Procedure 2.4.54 - Not Intended to Address Loss of
 Fire Protection or City Water Piping due to a Seismic Event, Evaluate, 4/6/11

Other:

Fire Protection System Health Report, 1st Quarter 2011

LIST OF ACRONYMS USED

ADAMS	[NRC] Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
CR	Condition Report
CRD	Control Rod Drive
DG	Diesel Generator
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EDMG	Extensive Damage Mitigation Guidelines
EOP	Emergency Operating Procedure
ERO	Emergency Response Organization
IP	Inspection Procedure
kV	Kilovolt
NEI	Nuclear Energy Institute
P&ID	Piping and Instrument Diagram
PARS	[NRC] Publicly Available Records
PM	Preventive Maintenance
PNPS	Pilgrim Nuclear Power Station
NRC	Nuclear Regulatory Commission
RCIC	Reactor Core Isolation Cooling
SAMG	Severe Accident Management Guideline
SBO	Station Blackout
SBO DG	Station Blackout Diesel Generator
SGTS	Standby Gas Treatment System
SSC	System, Structure, and Component
TI	[NRC] Temporary Instruction
TIP	Transverse Instrument Probe