**UNITED STATES**
**NUCLEAR REGULATORY COMMISSION**
REGION I
475 ALLENDALE ROAD
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October 28, 2008

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

SUBJECT: PILGRIM NUCLEAR POWER STATION - NRC INTEGRATED INSPECTION REPORT 05000293/2008004

Dear Mr. Bronson:

On September 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Pilgrim Nuclear Power Station (PNPS). The enclosed report documents the results, which were discussed on October 14, 2008, with Mr. Stephen Bethay, Director of Nuclear Safety Assurance, and other members of your staff.

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

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if any) 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/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

***/RA/ Original Signed By:***

Donald E. Jackson, Chief
Projects Branch 5
Division of Reactor Projects

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

Enclosure: Inspection Report 05000293/2008004
w/Attachment: Supplemental Information

cc w/encl:
Vice President, Operations, Entergy Nuclear Operations
Vice President, Oversight, Entergy Nuclear Operations
Senior Manager, Nuclear Safety & Licensing, Entergy Nuclear Operations
Senior Vice President and COO, Entergy Nuclear Operations
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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
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Commonwealth of Massachusetts, Secretary of Public Safety

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

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| Docket No: | 50-293 |
| License No: | DPR-35 |
| Report No: | 05000293/2008004 |
| Licensee: | Entergy Nuclear Operations, Inc. |
| Facility: | Pilgrim Nuclear Power Station (PNPS) |
| Location: | 600 Rocky Hill Road<br>Plymouth, MA 02360 |
| Inspection Period: | July 1, 2008 through September 30, 2008 |
| Inspectors: | M. Schneider, Sr. Resident Inspector, Division of Reactor Projects (DRP)<br>B. Smith, Resident Inspector, DRP<br>R. Rolph, Health Physicist, Division of Reactor Safety (DRS)<br>J. Ambrosini, Project Engineer (PE), DRP<br>W. Raymond, Sr. Resident Inspector, Seabrook, DRP<br>J. Schoppy, Sr. Reactor Inspector, DRS<br>A. Ziedonis, Reactor Inspector, DRS |
| Approved By: | Donald E. Jackson, Chief<br>Projects Branch 5<br>Division of Reactor Projects |

## SUMMARY OF FINDINGS

IR 05000293/2008004; 07/01/2008-09/30/2008; Pilgrim Nuclear Power Station; Routine Quarterly Integrated Report.

The report covered a three month period of inspection by resident and region-based inspectors. The NRC's program for overseeing the safe operation of nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

## REPORT DETAILS

Summary of Plant Status

Pilgrim Nuclear Power Station (PNPS) operated at or near 100 percent power during the inspection period with the following exceptions: On August 20, 2008, Entergy reduced power to approximately 40 percent to perform a thermal backwash on the main condenser; Entergy resumed 100 percent power operation on August 21, 2008. On August 22, 2008, Entergy reduced power to approximately 85 percent to perform a Rod Pattern Adjustment; Entergy resumed 100 percent power on August 22, 2008. The plant remained at or near 100 percent for the remainder of the inspection period.

### 1. REACTOR SAFETY

**Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

1R01 Adverse Weather Protection (71111.01)

.1 Seasonal Susceptibility

a. Inspection Scope (1 sample)

The inspectors performed a review of severe weather preparations during the week of July 14, 2008, to evaluate the site's readiness for the hurricane season, including the readiness of three risk-significant systems. The inspection examined selected equipment and supporting structures to determine if they were configured in accordance with Entergy procedures and if adequate controls were in place to ensure functionality of the systems. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and compared the UFSAR with procedure requirements to ascertain if procedures were consistent with the UFSAR. The inspectors performed partial walkdowns of the salt service water system, fire water system, and switchyard to determine the adequacy of equipment protection from the effects of hurricanes. Documents reviewed during the inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Impending Storm

a. Inspection Scope (1 sample)

On September 6, 2008, Tropical Storm Hanna was tracking to impact the Pilgrim plant that evening and into the next morning. The inspectors responded to the site that day to review Entergy's preparations for the tropical storm and the high winds expected to accompany the storm. The inspectors reviewed Entergy's severe weather procedures including; operations during severe weather, coastal storm preparations, and high winds (hurricane) procedures. The inspectors also reviewed the stated plant risk given the external risk increase from the storm and compared this to equipment that was out of service to determine if there was an overall increase in risk. The inspectors toured the "A" and "B"

Residual Heat Removal (RHR) Quadrants, the Reactor Core Isolation Cooling (RCIC) Quadrant, the High Pressure Coolant Injection (HPCI) room, the Control Rod Drive (CRD) Quadrant, as well as other areas of the Radiologically Controlled Area. The inspectors also conducted a tour of the plant grounds and the switchyard to determine if loose debris or other material could become airborne in the presence of high winds and thereby potentially impact safety related equipment. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns (71111.04Q)

a. Inspection Scope (3 samples)

The inspectors performed three partial system walkdowns during this inspection period. The inspectors reviewed the documents listed in the Attachment to determine the correct system alignment. The inspectors conducted a partial walkdown of each system to determine if the critical portions of the selected systems were correctly aligned in accordance with these procedures and to identify any discrepancies that may have had an effect on operability. The walkdowns included selected switch and valve position checks, and verification of electrical power to critical components. Finally, the inspectors evaluated other elements, such as material condition, housekeeping, and component labeling. The following systems were reviewed based on their risk significance for the given plant configuration:

- "B" RHR following Logic Testing;
- Fire Water System Equipment during maintenance on the "A" Fire Water Tank; and
- "B" Emergency Diesel Generator (EDG) during Electrical Bus A5 Logic Testing.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown (71111.04S)

a. Inspection Scope (1 sample)

The inspectors completed a detailed review of the HPCI System to verify the functional capability of the system. The inspectors conducted a walkdown of the system to determine whether the critical components, such as valves, switches, and breakers were aligned in accordance with procedures and to identify any discrepancies that could have an effect on operability. The inspectors discussed system health with the system engineer to determine whether the deficiencies significantly affected the HPCI system function. The inspectors also reviewed recent condition reports (CRs) to determine whether HPCI equipment problems were being identified and appropriately resolved. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Fire Protection - Tours (71111.05Q)

a. Inspection Scope (5 samples)

The inspectors performed walkdowns of five fire protection areas during the inspection period. The inspectors reviewed Entergy's fire protection program to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for the selected areas. The inspectors walked down these areas to assess Entergy's control of transient combustible material and ignition sources. In addition, the inspectors evaluated the material condition and operational status of fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The inspectors then compared the existing condition of the areas to the fire protection program requirements to determine whether all program requirements were met. In addition, the inspectors reviewed Entergy's contingency plan for fire water makeup during maintenance on the "A" Fire Water Tank. Documents reviewed during the inspection are listed in the Attachment. The fire protection areas reviewed were:

- "B" RHR/Core Spray Quadrant - Fire Zone 1.2;
- Control Rod Drive (CRD) Pump Quadrant Mezzanine Level - Fire Zone 1.8;
- Fire Water Tank "A" Out of Service affecting multiple areas;
- Control Building (Control Room Heating, Ventilation, and Air Conditioning El. 51') - Fire Zone 3.1; and
- Cable Spreading Room - Fire Zone 3.2.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

Internal Flooding Inspection

a. Inspection Scope (1 sample)

The inspectors walked down the "B" RHR quadrant, Flood Zone RB-17D, and associated flood propagation pathways, to assess the effectiveness of Entergy's internal flood control measures. The inspectors assessed the condition of curbing, floor drains, and water-tight doors. The inspectors also evaluated whether potential sources of internal flooding were analyzed. Documents reviewed during the inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope (1 sample)

The inspectors reviewed one sample of Entergy's program for maintenance, testing, and monitoring of risk significant heat exchangers (HXs) to assess the capability of the HXs to perform their design functions. The inspectors assessed whether the HX program conformed to Pilgrim's commitments to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." In addition, the inspectors evaluated whether any potential common cause heat sink performance problems could affect multiple HXs in mitigating systems or result in an initiating event. Based on risk significance and prior inspection history, the "B" RHR system HX was selected for review. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No Findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope (1 sample)

The inspectors observed one sample of licensed operator requalification testing on September 23, 2008. Specifically, the inspectors observed crew response to three accident scenarios including intake structure fouling in conjunction with a HPCI steam line break, a Safety Relief Valve (SRV) failing open resulting in high containment pressure, and a RCIC isolation in conjunction with the loss of hotwell level control. The inspectors assessed the testing to determine if the training evaluators adequately addressed observed deficiencies regarding the Emergency Operating Procedures (EOPs) and Emergency Action Level (EAL) classification and notification. In addition, the inspectors conducted a simulator fidelity review to determine if the arrangement of the simulator instrumentation and controls closely paralleled that of the control room. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope (2 samples)

The inspectors reviewed the two samples listed below for items such as: (1) appropriate work practices; (2) identifying and addressing common cause failures; (3) scoping in

accordance with 10 CFR 50.65(b) of the Maintenance Rule (MR); (4) characterizing reliability issues for performance; (5) trending key parameters for condition monitoring; (6) charging unavailability for performance; (7) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and (8) appropriateness of performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). In addition, the inspectors reviewed the appropriateness of excluding infrequently performed maintenance activities from SSC unavailability performance criteria. Documents reviewed are listed in the Attachment. Items reviewed included the following:

- Neutron Monitoring System Functional Failures; and
- Evaluation of Maintenance Rule (a)(1) status for the “A” EDG.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope (5 samples)

The inspectors evaluated five online maintenance risk assessments for planned maintenance activities. The inspectors reviewed maintenance risk evaluations, work schedules, and control room logs to determine if concurrent maintenance or surveillance activities adversely affected the plant risk already incurred with out-of-service components. The inspectors verified the appropriate use of Entergy’s risk assessment tool, Equipment Out of Service (EOOS), and entry into appropriate risk categories. The inspectors evaluated whether Entergy took the necessary steps to control work activities, minimized the probability of initiating events, and maintained the functional capability of mitigating systems. The inspectors assessed Entergy's risk management actions during plant walkdowns. Documents reviewed during the inspection are listed in the Attachment. The inspectors reviewed the conduct and adequacy of maintenance risk assessments for the following maintenance and testing activities:

- Fire Tank “A” Out of Service;
- Yellow Risk Assessment During Station Blackout EDG Outage;
- Risk Assessment of inoperability of Low Pressure Coolant Injection (LPCI) during HPCI run;
- Yellow Risk Assessment of HPCI inoperability during Breaker and Valve Maintenance; and
- Yellow Risk Assessment During EDG “A” Initiation by RHR Logic.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (4 samples)

The inspectors reviewed four operability determinations associated with degraded or non-conforming conditions to determine if the operability determination was justified and if the mitigating systems or those affecting barrier integrity remained available such that no unrecognized increase in risk had occurred. The inspectors also reviewed compensatory measures to determine if the compensatory measures were in place and were appropriately controlled. The inspectors reviewed licensee performance against related Technical Specifications (TS) and UFSAR requirements. Documents reviewed during the inspection are listed in the Attachment. The inspectors reviewed the following degraded or non-conforming conditions:

- CR-PNP-2008-2095, HPCI/RCIC Cooling/Condensate Storage Tank Air Introduction During Pressure Control Mode;
- CR-PNP-2008-1995, Air Cooled Breaker 104B Disconnect Not Seating Properly;
- CR-PNP-2008-2147, Defects in KWN-R-15 Fuses for "B" RHR Pump Motors; and
- CR-PNP-2003-3546, Lack of Ventilation in D8/D9 Motor Control Center Enclosure.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Permanent Modification

a. Inspection Scope (1 sample)

The inspectors reviewed Permanent Modification ERO6112309, "Replace Unit Auxiliary Transformer (UAT) circuit breaker 8-1 with a Magnetic Only Style", and the associated 10 CFR 50.59 screening, to determine whether the licensing bases and performance capability of the associated system had been degraded through the modification. A walkdown was performed to determine whether the modified circuit breaker would be subject to the same conditions that degraded the performance of the old circuit breaker. The inspectors reviewed applicable condition reports, calculations, and electrical drawings to determine whether they properly reflected the permanent modification. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Temporary Modification

a. Inspection Scope (1 sample)

The inspectors reviewed Temporary Modification Engineering Change (EC) 5000071914, "Install Four Clamps on P-208A Discharge Head to Base Plate to Reduce Vibration", to determine whether the performance capability of the "A" Salt Service Water Pump had been degraded through the modification. A walkdown was performed to determine

whether the material condition and structural integrity of the pump's base plate had degraded. The inspectors reviewed applicable drawings to determine whether they properly reflected the temporary modification. In addition, the inspectors reviewed pump vibration data before and after the modification to determine whether the modification caused any negative trends. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (8 samples)

The inspectors reviewed eight samples of post-maintenance tests (PMT) during this inspection period. The inspectors reviewed these activities to determine whether the PMT adequately demonstrated that the safety-related function of the equipment was satisfied, given the scope of the work performed, and that operability of the system was restored. In addition, the inspectors evaluated the applicable test acceptance criteria to verify consistency with the associated design and licensing bases, as well as TS requirements. The inspectors also evaluated whether conditions adverse to quality were entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment. The following maintenance activities and their post-maintenance tests were evaluated:

- Replacement of RCIC Steam High Flow Relay;
- "B" EDG Motor Operated Controller Replacement;
- "A" Control Room High Efficiency Air Filtration system maintenance;
- HPCI Turbine Gland Seal Hotwell Pump P-220 Breaker Maintenance and HPCI Turbine Steam Supply Valve Maintenance;
- Replacement of Charcoal Filter Cells in the Standby Gas Treatment System;
- Station Blackout Diesel Generator Stator Winding, Exciter Field Winding, and Cable Insulation Maintenance and Testing;
- Shutdown Transformer Inspection and Testing of F15 Spark Gap; and
- Startup Transformer Maintenance and Testing.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (7 samples)

The inspectors reviewed seven samples of surveillance activities to determine whether the testing adequately demonstrated equipment operational readiness and the ability to perform the intended safety functions. The inspectors reviewed selected prerequisites and precautions to determine if they were met and if the tests were performed in accordance with the procedural steps. Additionally, the inspectors evaluated the applicable test

acceptance criteria for consistency with associated design bases, licensing bases, and TS requirements. The inspectors also evaluated whether conditions adverse to quality were entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment. The following surveillance tests were evaluated:

- "D" Salt Service Water Pump In-Service Test (IST) Surveillance;
- "A" EDG Monthly Surveillance;
- 4160 Volt Emergency Bus A5 and A6 Load Shed Surveillance;
- "A" EDG Initiation by Residual Heat Removal logic;
- Primary System Boundary Leak Rate Calculation;
- "A" Reactor Building Closed Cooling Water Biennial Comprehensive IST Surveillance; and
- Load Shed Relay Operation/Functional Test.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 simulator training sample)

The inspectors observed licensed operator requalification testing on September 23, 2008. The inspectors evaluated the operating crew activities relating to accurate and timely classifications and notifications of EAL declarations. Additionally, the inspectors assessed the ability of training evaluators to adequately address operator performance deficiencies identified during the examination. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (11 samples)

During the period July 7 through 10, 2008, the inspector conducted the following activities to verify that the licensee was properly implementing physical, administrative, and engineering controls for access to locked high radiation areas, and other radiologically controlled areas during power operations. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, relevant Technical Specifications, and the Entergy's procedures. This inspection activity represents the completion of 11 samples

relative to this inspection area.

Plant Walkdown and Radiation Work Permits (RWP) Reviews

The inspectors observed two work areas and reviewed associated Entergy controls for acceptability. The inspectors reviewed the electronic personal dosimeter alarm set points (both integrated dose and dose rate) for conformity with survey indications and plant policy. There were no RWPs for airborne radioactivity areas with the potential for individual worker internal exposures of greater than 50 mrem Committed Effective Dose Equivalent (CEDE) and there were no actual internal exposures greater than 50 mrem CEDE. The inspectors examined Entergy's physical and programmatic controls for highly activated or contaminated materials (non-fuel) stored within the spent fuel pool.

Problem Identification and Resolution

The inspectors reviewed Entergy's condition reports related to the access control program since the last inspection to determine if repetitive deficiencies or significant individual deficiencies are identified. There were no Performance Indicator (PI) events since the previous inspection January 7 through 10, 2008.

Job-In-Progress Reviews

The inspectors reviewed all radiological job requirements, attended pre-job briefings and observed job performance for two work activities. The inspectors verified the adequacy of radiological controls during the work evolutions including, radiation protection job coverage and surveys.

Radiation Worker and Radiation Protection Technician Performance

The inspectors verified that the radiation workers' performance was in conformance with the radiation protection work requirements. The inspectors reviewed condition reports since the last inspection that identified the cause as radiation protection technician error. The inspectors looked for observable patterns traceable to a similar cause and if corrective actions were effective.

b. Findings

No findings of significance were identified.

2OS2 As Low As Reasonably Achieveable (ALARA) Planning and Controls (71121.02)

a. Inspection Scope (3 samples)

During the period July 7 through 10, 2008, the inspector conducted the following activities to verify that Entergy was properly implementing operational, engineering, and administrative controls to maintain personnel exposure ALARA during routine plant operation. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Entergy's procedures. This inspection activity represents the completion of three samples relative to this inspection area.

Verification of Dose Estimates and Exposure Tracking Systems

The inspectors reviewed the assumptions and basis for the current annual collective exposure estimate and the methodology used. The inspectors reviewed the methods used to make adjustments to the exposure estimate when unexpected changes occurred.

Problem Identification and Resolution

The inspectors reviewed condition reports related to the ALARA program since the last inspection to determine if repetitive deficiencies or significant individual deficiencies are identified. There were no PI events since the previous inspection January 7 through 10, 2008.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03)

a. Inspection Scope (8 samples)

During the period August 11 through 14, 2008, the inspector conducted the following activities to verify the accuracy, operability, and proper use of Entergy's radiation monitoring instruments and to evaluate the adequacy of the Entergy's program to maintain Self Contained Breathing Apparatus (SCBA). Implementation of the controls was reviewed against the criteria contained in 10 CFR 20, "Standards For Protection Against Radiation", relevant Technical Specifications, and Entergy's procedures. This inspection activity represents the completion of eight samples relative to this inspection area.

Inspection Planning

The inspectors reviewed the UFSAR to identify area, process, and emergency monitors. The inspectors did not include monitors covered by the Maintenance Rule.

Instrument Reviews

The inspectors observed calibration of several types of radiation monitoring instruments and reviewed calibration records. During the calibration observations the inspectors reviewed detector measurement geometry, calibration method, and selection of calibration sources. The inspectors observed daily source checks of in use radiation monitoring instruments. The inspectors reviewed the actions taken when an instrument was found out of tolerance.

The inspectors reviewed source calibration certificates and Pilgrim's 10 CFR 61, Licensing Requirements For Land Disposal of Radioactive Waste, analysis for several pathways to ensure the calibration sources used were representative of the plant source term.

Problem Identification and Resolution

The inspectors reviewed Pilgrim's annual radiation protection program audit. There were

no internal exposures greater than 50 milli-rem CEDE. The inspectors reviewed ten condition reports related to the radiation monitoring instruments and the SCBA program to determine if repetitive deficiencies or significant individual deficiencies were identified.

Radiation Protection Technician Performance

The inspectors observed a radiation protection technician's use of a radiation detection instrument. The inspectors verified the appropriate instrument was selected and the appropriate checks were performed prior to use.

Respiratory Protection – SCBA

The inspectors observed the operation of the SCBA bottle fill compressor and the pathways to transport SCBA bottles to and from the control room and the operations support center. The inspectors did not review qualifications of personnel maintaining SCBA's as Pilgrim does not perform any maintenance of the SCBA's. All required maintenance is performed by an outside vendor.

b. Findings

No findings of significance were identified.

**Cornerstone: Public Radiation Safety**

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

a. Inspection Scope (2 samples)

During the period July 7 through 10, 2008, the inspector conducted the following activities to verify that radioactive gaseous and liquid effluents are properly mitigated, monitored, and evaluated with respect to public exposure. This inspection activity represents the completion of two samples relative to this inspection area.

The inspectors assessed Pilgrim's understanding of the location and construction of underground pipes and tanks that contain radioactively contaminated liquids and Pilgrim's onsite groundwater monitoring program. The inspectors reviewed Pilgrim's verification and validation records for the dose calculation program. The inspectors reviewed Pilgrim's interlaboratory comparison program to verify the quality of radioactive effluent sample analyses performed.

b. Findings

No findings of significance were identified.

## 4. OTHER ACTIVITIES [OA]

**Cornerstone: Mitigating Systems**

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope (3 samples)

The inspectors reviewed PI data to determine the accuracy and completeness of the reported data. The review was accomplished by comparing reported PI data to confirmatory plant records and data available in plant logs, CRs, Licensee Event Report (LERs), and NRC inspection reports. The acceptance criteria used for the review was Nuclear Energy Institute (NEI) 99-02, Revision 5, "Regulatory Assessment Performance Indicator Guidelines." Documents reviewed during the inspection are listed in the Attachment. The following performance indicators were reviewed:

- HPCI System from the third quarter of 2007 through the first quarter of 2008;
- Heat Removal RCIC System from the third quarter of 2007 through the first quarter of 2008;
- RHR System from the third quarter of 2007 through the first quarter of 2008;

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program (CAP)

a. Inspection Scope

The inspectors performed a screening of each item entered into the licensee's CAP. This review was accomplished by reviewing printouts of each CR, attending daily screening meetings and/or accessing the licensee's database. The purpose of this review was to identify conditions such as repetitive equipment failures or human performance issues that might warrant additional follow-up.

b. Findings

No findings of significance were identified.

.2 Annual Sample: Foreign Material Exclusion (FME) Control

a. Inspection Scope (1 sample)

The inspectors focused on Entergy's problem identification, evaluation, and resolution concerning potential FME control issues associated with a reactor pressure vessel (RPV) bottom head drain backflush evolution. Specifically, on April 17, 2007 a planned RPV bottom head drain backflush activity resulted in the inadvertent introduction of an underwater plume of debris back up into the RPV. The reactor was partially defueled with the reactor cavity flooded during a refueling outage when the event occurred. Entergy initiated several correction action condition reports (CRs) to address RPV clean-up, to assess FME controls, and to evaluate unrecoverable foreign material (lost parts and/or debris).

The inspector selected Entergy's post-event actions for review based on the potential impact on fuel cladding integrity, reactivity controls, and/or critical reactor coolant system (RCS)

components. Specifically, unrecovered debris could cause fuel rod fretting, adversely impact control rod scram times or drive performance, or lodge in unwanted places in RCS components.

The inspector reviewed Entergy's associated clean-up activities, FME-related apparent cause evaluations and self-assessments, extent of condition review, and short and long-term corrective actions. The inspector also interviewed plant personnel; viewed underwater in-vessel video footage of the event (including before and after pictures of the RPV bottom head cleanliness); and reviewed procedures, related industry operating experience (OE), and system health reports. In addition, the inspector reviewed Pilgrim's Technical Specifications and UFSAR to assess potential adverse impact on RCS components and the thoroughness of Entergy's evaluations. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified.

Entergy completed a thorough clean-up of the RPV bottom head debris, including expanding the scope of the initial clean-up effort to recover a high percentage of the debris. Engineering adequately evaluated the potential impact of several identified small items deemed unrecoverable. Entergy effectively used their corrective action process to identify and evaluate in-vessel foreign material (including items not attributed to the backflush activity) and adequately tracked associated corrective actions to completion.

The inspector noted that engineering did not thoroughly document their engineering judgment and basis for concluding that the potential debris dispersal pathway was limited to the RPV bottom head area. Given the number of FME issues identified in the two most recent Pilgrim refueling outages (RFO15 & RFO16), the inspector noted that Entergy's FME-related self-assessments were not self-critical or probing and FME-related corrective actions did not include an effectiveness review to ensure adequate performance improvement. Based on documents reviewed and interviews conducted, the inspector concluded that the issue was of minor safety significance, in that, the backflush-induced debris did not adversely impact scram times, fuel clad integrity, control rod drive performance, or RCS components.

4OA6 Meetings, Including Exit

On July 10, 2008, an Occupational Radiation Safety exit meeting was conducted. The preliminary inspection results were presented to Mr. Robert Smith, General Manager, Plant Operations, and other members of the Pilgrim staff. The inspector confirmed that no proprietary information was provided or examined during the inspection.

On August 14, 2008, an Occupational Radiation Safety exit meeting was conducted. The preliminary inspection results were presented to Mr. Tom McElhinney, General Manager, Plant Operations (Acting), and other members of the Pilgrim staff. The inspector confirmed that no proprietary information was provided or examined during the inspection.

On August 21, 2008, a Problem Identification and Resolution exit meeting was conducted. The preliminary inspection results were presented to Mr. Robert Smith, General Manager, Plant Operations and other members of the Pilgrim staff. The inspector confirmed that no proprietary information was provided or examined during the inspection.

On September 11, 2008, a Problem Identification and Resolution exit meeting was conducted. The preliminary inspection results were presented to Mr. Brian Sullivan, Engineering Director, and other members of the Pilgrim staff. The inspector confirmed that no proprietary information was provided or examined during the inspection.

On October 14, 2008, the resident inspectors conducted an exit meeting and presented the preliminary inspection results to Mr. Stephen Bethay, (Acting) Site Vice President, and other members of the Pilgrim staff. The inspectors confirmed that no proprietary information was provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

Licensee personnel:

| | |
|---|---|
| K. Bronson | Site Vice President |
| R. Smith | General Manager Pilgrim Operations |
| S. Bethay | Director, Nuclear Safety Assurance |
| J. Burns | Instrumentation & Controls Technician |
| D. Eldredge | Radiation Protection Technician |
| M. Farrell | Instrumentation & Controls Technician |
| J. Fitzsimmons | Radiation Protection Supervisor |
| M. Gatslick | Licensing Engineer |
| K. Gracia | Shift Manager (NUC) |
| P. Harizi | Design Engineer |
| G. Jennings | Radiation Protection Technician |
| C. Julius | Supervisor, Control Room |
| T. Kelly | Radiation Protection Technician |
| P. Kristian | Maintenance Supervisor |
| W. Lobo | Licensing Engineer |
| J. Lynch | Licensing Manager |
| J. Macdonald | Assistant Operations Manager |
| W. Mauro | Supervisor, Radiological Engineering (ALARA) |
| S. McAllister | System Engineering Manager |
| M. McDonnell | Assistant Manager, Operations (Support) |
| J. McDonough | Operations, PNP Lbr |
| T. McElhinney | Supt., Chemistry |
| J. Miketa | Radiation Protection Technician |
| D. Noyes | Manager Plant Operations |
| I. Onorato | Radiation Protection Technician |
| J. Priest | Radiation Protection Manager |
| J. West | Radiation Protection Technician |

### LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

None

## LIST OF DOCUMENTS REVIEWED

**Section 1R01**

CR-PNP-2008-1995, ACB 104B Disconnect Not Seating Properly
CR-PNP-2008-2228, Radioactive Debris on Reactor Building Roof
UFSAR Section 2.4.4, Storm Flooding Protection
UFSAR Section 10.7, Salt Service Water
UFSAR Section 10.8, Fire Protection
Procedure 2.1.37, Revision 25, Coastal Storm Preparations and Actions
Procedure 5.2.3, Revision 19, Tornado
Procedure 2.1.42, Revision 6, Operations During Severe Weather
Equipment Out of Service Risk Assessment Tool
Procedure 5.2.2, Revision 31, High Winds (Hurricane)
CR-PNP-2008-02851, Condensation in "A" RHR, "B" CRD Pump collection pail near overflowing, additional Tropical Storm Hanna preparations

**Section 1R04**

Daily Logs for 7/17/08
Procedure 8.C.43, Revision 9, RHR "B" Monthly System Valve Line-up Surveillance
Procedure 2.4.54, Revision 22, Loss of All Fire Suppression Pumps or Loss of Redundancy in the Fire Water Supply System
Procedure 2.2.25, Revision 54, Fire Water Supply System
UFSAR Section 10.8.4.2.1, Fire Protection Water Supply
Procedure 8.B.1, Revision 85, Fire Pump Test
Procedure 8.B.14, Revision 41, Fire Technical Requirements
Procedure 2.2.8, Revision 94, Standby AC Power System (Diesel Generator)
Procedure 2.2.108, Revision 42, Diesel Generator Cooling and Ventilation System
UFSAR Section 8.5, Standby AC Power Source
TS 3.9, Auxiliary Electrical Equipment
Procedure 2.2.21, Revision 73, HPCI Valve and Breaker Checklist
Systems Drawings Manual
TS 3.5.C Bases, HPCI System
CR-PNP-2006-1802, CST Vortexing
CR-PNP-2008-2095, Air Introduction into CST during RCIC/HPCI Pressure Control Mode of Operation

**Section 1R05**

Procedure 2.4.143, Revision 39, Shutdown From Outside Control Room
Procedure 5.5.1, Revision 25, General Fire Procedure
Procedure 5.5.2, Revision 40, Special Fire Procedure
Procedure 8.B.19, Revision 20, Fire Brigade Equipment Inspection
Fire Hazards Analysis, Fire Zone Data Sheet for Fire Area 1.10, Fire Zone 1.2
Fire Hazards Analysis, Fire Zone Data Sheet for Fire Area 1.9, Fire Zone 1.8
Fire Hazards Analysis, Fire Zone Data Sheet for Fire Area 3.1, Fire Zone 3.1
Fire Hazards Analysis, Fire Zone Data Sheet for Fire Area 3.2, Fire Zone 3.2
Report No. 89XM-1-ER-Q-E5, Updated Fire Hazards Analysis
Exemption Request No. 11, Torus to NE Quad Fire Barrier
Procedure 1.5.22, Revision 11, Risk Assessment Process

UFSAR Section 10.8.4.1.2, Fire Water Supply System
PNP Fire Water Storage
Contingency Plan for Additional Water Storage
Procedure 2.4.54, Revision 22, Loss of Fire Water
Procedure 5.5.2, Revision 37, Special Fire Procedure (Turbine Building Fan Room #2)
Procedure 2.2.129, Revision 15, Attachment 3, Halon 1301 Systems-Cable Spreading Room
Procedure 2.2.29, Revision 26, Smoke and Heat Detection Systems

**Section 1R06**

PNPS Probabilistic Safety Assessment, Appendix E, Internal Flooding Analysis
Procedure 8.A.16, Revision 15, RHR System Integrity Surveillance
PNPS Flooding Calculations, Flooding Due to ECCS Leakage Outside Containment

**Section 1R07**

Procedure 8.5.3.14.2, Revision 2, RHR Heat Exchanger Thermal Performance Test
Specification RTYPE B5.21, SSW & RBCCW Safety Related Piping & Heat Exchanger Inspection, Maintenance & Test Requirements in Response to Generic letter 89-13, Revision 16
Calculation M710, Revision 0, Heat Exchanger Performance Testing

**Section 1R11**

LORT/NRC Simulator Exam Scenario SES-049 "Loss of Hotwell Level Control, Loss of CRD Pump, RCIC Isolation, Elevated Area Temperatures"
LORT/NRC Simulator Exam Scenario SES-023 "Safety Valve Fails Open/High Containment Pressure"
LORT/NRC Simulator Exam Scenario SES-171 "Intake Structure Fouling/HPCI Steam Line Break"
EP NRC PI Information for September 2008 and 3Q2008 Report

**Section 1R12**

PNPS Maintenance Rule (a)(1) Systems Status
45A – Power Range Neutron Monitoring 1st Quarter 2008 System Health Report
CR-PNP-2008-1204, Functional Failures in the Neutron Monitoring System exceed the Maintenance Rule Performance Criteria
CR-PNP-2008-0797, ½ Scram on RPS Channel "B" when LPRM spiked causing APRM "B" HIHI/INOP alarm
Maintenance Rule Scoping Document for System 45a, Neutron Monitoring
UFSAR Section 7.5, Neutron Monitoring System
RTYPE E2.15, MRSSC 35, Revision 1, Maintenance Rule SSC Basis Document for Neutron Monitoring System
Maintenance Rule (a)(1), Action Plan for Neutron Monitoring System dated 7/8/08
Maintenance Rule (a)(1), Action Plan for RBCCW System dated 01/19/06
CR-PNP-2006-0252, Evaluate Failures Associated with GE Pre-regulators
EN-DC-203, Revision 1, Maintenance Rule Program
EN-DC-204, Revision 1, Maintenance Rule Scope and Basis
EN-DC-205, Revision 1, Maintenance Rule Monitoring
NRC Regulatory Guide 1.160, Revision 2, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
NUMARC 93-01, Revision 2, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

Pilgrim Evaluation of Maintenance Rule (a) (1) status for X-107A, "A" Emergency Diesel Generator
Procedure EN-DC-204, Revision 1, Maintenance Rule Scope and Basis
Procedure EN-DC-205, Revision 1, Maintenance Rule Monitoring
Procedure EN-DC-206, Revision 1, Maintenance Rule (a) (1) Process
Procedure EN-DC-203, Revision 1, Maintenance Rule Program

**Section 1R13**

Procedure 2.4.54, Revision 22, Loss of Fire Suppression or Redundancy in Fire Water Supply
PNPS Compensatory Measures Sheet
Equipment Out-of-Service (EOOS) Quantitative Risk Tool
PNPS Online Daily Schedule 7/21 to 7/31
UFSAR Section 10.8.4.2.1, Fire Water Supply System Technical Requirements
CR-PNP-2008-2213, Fire Water Storage Tank Specifications for work delivered late
Work Week Schedule (8/12/08)
Procedure 1.5.22, Revision 11, Risk Assessment Process
Work Week Schedule (8/21/08)
Work Week Schedule (8/25/08)
Risk Management Actions for Yellow Risk Condition
Procedure 8.M.2-2.10.8.1, Revision 30, Diesel Generator "A" Initiation by RHR Logic
Contingency Plan for Additional Water Storage

**Section 1R15**

CR-PNP-2006-1802, CST Vortexing
CR-PNP-2008-2095, Air Introduction into CST during RCIC/HPCI Pressure Control Mode of Operation
Reasonable Expectation of Operability for CR-PNP-2008-02095
50.59 Screen for CR-PNP-2008-02095
Operations Standing Order 06-05, Revision 2, dated 06/27/08, Available CST volume for HPCI/RCIC operation
UFSAR Section 6.4.1, High Pressure Coolant Injection System
Procedure 2.1.35, Revision 47, Control Room Readings
UFSAR Section 4.7, Reactor Core Isolation Cooling System
Generic Letter (GL) 2008-01, Managing Gas Accumulation in Emergency Core Cooling Decay Heat Removal, and Containment Spray Systems
CR-PNP-2008-1995, ACB 104B Disconnect Not Seating Properly
CR-PNP-2008-2083, Condition Report Closed to the Work Order without acceptable documentation
PNP Procedure 1.4.4, Revision 20, Electrical Grid
345 KV Diagram
Procedure EN-DC-310, Predictive Maintenance Program
Procedure 3.M.3-60, Revision 7, Infrared Thermography
Preventive Maintenance Inspection Thermography Results
Information Notice 2006-05, Possible Defect in Bussmann KWN-R and KTN-R Fuses
Part 21 Report on 1/25/06, Defect in Bussmann Fuses
CR-PNP-2008-2147, Defects in KWN-R-15 Fuses for "B" RHR Motors
CR-PNP-2005-3643, Overload/fuse issue with "B" RHR MOV
CR-PNP-2003-3546, MCC D9 cubicles were hot to the touch (temperature was 94 deg F)
UFSAR Section 8.6, 125 and 250 Volt DC Power Systems

UFSAR Section 6.4.1, High Pressure Coolant Injection
TS 3/4.5.C, HPCI System, and TS Bases
Supplier Design Document Review Form 91-132, Revision 0, Motor Control Center Environmental Qualification
N142, Revision 3, MCC Enclosure Temperatures
EQDF 421, Revision 0, Qualification Report for Cutler Hammer Motor Control Center Buckets

**Section 1R18**

CR-PNP-2006-2884, Breaker on UAT tripped due to overload at elevated temperatures
50.59 Review Form, Replace UAT Breaker 8-1
ER06112309, Replace UAT Breaker with Magnetic Only Style
Apparent Cause Evaluation, Breaker tripped resulting in loss of all UAT oil forced cooling
Process Applicability Determination Form for ER06112309
EC5000071914, Install 4 Clamps on P-208A Discharge Head to Base Plate to Reduce Vibration
Assembly Drawing Service Water Pump P208A
Hilti Anchor System Installation Instructions

**Section 1R19**

CR-PNP-2008-2195, Incorrect Torque during changeout of relay 13A-K7
UFSAR Section 4.7, Reactor Core Isolation Cooling System
Connection Diagram RCIC Relay Cabinet Panel C930, Drawing No. MIP458-8
Elementary Diagram, RCIC System, Drawing No. MI613-11 and MIG12-12
Procedure 3.M.3-51, Revision 26, Electrical Termination Procedure
Procedure 8.M.2-2.6.1, Revision 48, RCIC Steam Line High Flow
WO 51571739, Replacement of Relay 13A-K7
Commercial Grade Item Engineering Evaluation Sheet
Procedure 8.9.1, Revision 110, Emergency Diesel Generator and Associated Emergency Bus Surveillance
Work Order 156782-02, EDG “B” MOC is erratic and needs to be cleaned or replaced
EN-MA-125, Revision 3, Trouble Shooting Control Form for WO 00156782
CGI 490, Revision 4, Commercial Grade Item Engineering Evaluation Sheet for Motor Operated Potentiometer
Procedure 3.M.3-51, Revision 26, Electrical Termination Procedure
CR-PNP-2008-2420, Missed Commercial Grade Item Post Maintenance Test Requirements
CR-PNP-2008-2421, Missed Second Verification Initials on two lifted leads
TS 4.7.B.2.a, Amendment 215, Control Room High Efficiency Air Filtration System
UFSAR 10.17.2, Section 10.7.2, Revision 26
WO 51654430, Measure Flow and Pressure Drop Across Control Room High Efficiency Air Filtration System (CRHEAFs) Train “A”
WO 51654433, Control Room Filter Charcoal Cell Replacement
WO 51654431, CRHEAFs Train “A” DOP Test
WO 51654432, CRHEAFs Train “A” Freon Test
Procedure 8.7.2.7, Revision 343, Measure Flow and Pressure Drop Across CRHEAFs
Procedure 7.1.30, Revision 26, HEPA Filter and Charcoal Cell Performance Test Program
Procedure 3.M.4-65, Revision 7, Changing Main Control Room Environmental System Carbon Cells
WO 5165534901, 8.Q.3-4 Breaker Testing and Maintenance 72-923
WO 5165534902, 8.Q.3-4 Breaker Post Work Test 72-923

Procedure 8.Q.3-4, Revision 51, 125/250 VDC Motor Control Center and Breaker Panel Testing and Maintenance
WO 0015585401, MOV Stem Lube, MO-2301-3
WO 0015585402, MOV Stem Lube, MO-2301-3, Post Maintenance Test
Procedure 3.M.3-24.15, Revision 7, Valve Stem Lubrication
WO 5165429101, Replace two charcoal filter cells in SGTS VGTF-201A
Procedure 3.M.4-38, Revision 15, Standby Gas Treatment (SGT) System Maintenance
WO 5165429201, HEPA FLTR DOP Testing – Standby Gas Treatment Train "A"
Procedure 8.7.2.1, Revision 26, Measurement of Standby Gas Treatment Fitting and Fan Capacity
WO 5157097101, 3.M.3-61.6, Insulated Test Load = BO DSL X-166
Procedure 3.M.3-61.6, Revision 15, Blackout Diesel Generator General and Preventative Maintenance
Procedure 3.M.3-17.3, Revision 8, Raychem or Tape Field Splice or Tape Repair of 5KV cables
Procedure 8.9.16.1, Revision 35, Manually Start and Load Blackout Diesel via the Shutdown Transformer
WO 5157097102, 3.M.3-61.6, Post Maintenance Test
CR-PNP-2008-2737, Thermocouple for SBO Cylinder 3R had a loose wire
CR-PNP-2008-2743, During SBO Retest, Expansion Tank Level was outside of the normal band
TS 3.9.B, Auxiliary Electrical System
UFSAR 8.3, Secondary AC Power Source
WO 51571740, Inspection of F15 Spark Gap
WO 51659972, Shutdown Transformer Functional Testing
Procedure 3.M.3-41, Revision 22, Station Transformer Auxiliaries Calibration and Functional Testing
CR-PNP-2008-2818, Surface Degradation on SDT
CR-PNP-2008-2819, F-15 Structure Supports are degraded
WO 51565152 01, Performance Power Factor Test – Startup Transformer
Procedure 3.M.3-59, Revision 6, Power Factor Testing
WO 51565152 02, Perform Infrared Test of Startup Transformer
Procedure 3.M.3-60, Revision 7, Infrared Thermography
CR-PNP-2008-2964, Small crack found in the "A" Phase PTR cover

**Section 1R22**

Procedure 8.5.3.2.1, Revision 21, Salt Service Water Pump Quarterly Operability Test
Procedure 8.I.1.1, Revision 21, Inservice Pump and Valve Testing Program
TS 3.5.B.4, Salt Service Water System
UFSAR Section 10.7.5, Salt Service Water
CR-PNP-2008-2341, Vibrations on SSW "D" Pump reached high alert value
Procedure 8.9.1, Revision 110, EDG Surveillance
Procedure 8.M.2-2.1.10, Revision 34, 4150 Volt Emergency Buses A5 and A6 Loss of Voltage and Degraded Voltage Relays
TS 3.9, Auxiliary Electrical Equipment
Work Orders 51559540-01, 51669537-01, 51669539-01, 51669538-01
Procedure 8.M.2-2.10.8.1, Revision 30, Diesel Generator "A" Initiation by RHR Logic
EDG/RHR logic diagram
CR-PNP-2008-02878, Received PT Fuse Failure alarm during "A" EDG test
Pilgrim Equipment and Floor Drain leakage spread sheets and graphs
Operations Narrative Logs

TS 3.6.C, Primary System Boundary Coolant Leakage
Procedure 8.5.3.1, Revision 57, RBCCW System Quarter and Biennial Comprehensive Operability
TS 3.13, In-Service Code Testing
TS 3.5.B.3, RBCCW System
WO 51564993 01, Load Shed Relay Functional Test
Procedure 3.M.3-47, Revision 78, Load Shed Relay Operational/Functional Test
Drawing E505, Revision E6, Undervoltage Relays Panel AA604
Drawing E18, Revision E18, Diesel Generator Load Shedding
Drawing E157, Revision E7, Traveling Screens and Screen Wash Pumps
Drawing E38, Revision 15, 4160 Volt System Breakers 152-504 and 152-604
Drawing E17, Revision 15, 4160 Volt System

**Section 1EP6**

LORT/NRC Simulator Exam Scenario SES-049 "Loss of Hotwell Level Control, Loss of CRD Pump, RCIC Isolation, Elevated Area Temperatures"
LORT/NRC Simulator Exam Scenario SES-023 "Safety Valve Fails Open/High Containment Pressure"
LORT/NRC Simulator Exam Scenario SES-171 "Intake Structure Fouling/HPCI Steam Line Break"
NUREG 0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
EP NRC PI Information for September 2008 and 3Q2008 Report

**Section 2OS1**

Procedures:

EN-RP-100 Rad Worker Expectations, Revision 1
EN-RP-104 Radiation Work Permits, Revision 4
EN-RP-106 Radiological Survey Documentation, Revision 1
EN-RP-108 Radiation Protection Postings, Revision 6
EN-RP-110 ALARA Program, Revision 5
EN-RP-131 Air Sampling, Revision 6
6.1-220 Radiological Controls for High Risk Evolutions, Revision 4

Condition Reports: 08-00028, 08-00878, 08-00982, 08-01079, 08-01367, 08-01428, 08-01483, 08-01465, 08-01555, 08-01578, 08-01630, 08-01989, 08-02055, 08-02123

Radiation Work Permits: 20080039, 20080008

**Section 2OS2**

Procedures:

EN-RP-110 ALARA Program, Revision 5
6.1-220 Radiological Controls for High Risk Evolutions, Revision 4

Condition Reports: 08-00013, 08-00272, 08-00341, 08-00722, 08-00730, 08-01039, 08-01602, 08-01775

Miscellaneous Records & Reports:

Hot Spot Master Tracking list as of 6/23/2008

**Section 2OS3**

Procedures:

EN-RP-301, Revision 2, Radiation Protection Instrument Control
EN-RP-303, Revision 2, Source Checking of Radiation Protection Instrumentation
6.5-003, Revision 8, Radiation Protection Instrumentation Calibration Frequency
6.5-160, Revision 32, Calibration of the Area Radiation Monitoring System
6.5-170, Revision 22, Calibration of Ventilation System Radiation Monitors
6.5-307, Revision 16, Calibration of the Eberline RO-2/RO-2A or RO-20 Ion Chamber
6.5-311, Revision 10, Calibration of the Eberline Model RO-7 Radiation Monitor
6.5-324, Revision 9, Calibration of the Eberline Model BC-4 Beta Counter
6.5-341, Revision 13, Calibration of the DMC 2000S Electronic Dosimeter
6.7.1-201, Revision 9, Operation of the SCBA Air Compressor

Condition Reports: 07-03736, 07-03837, 07-04188, 07-04301, 07-04805, 07-04894, 07-04896, 07-05082, 08-01269, 08-02079

Miscellaneous Records & Reports:
Pilgrim Nuclear Power Station 2007 Radiation Protection Program Annual Report, May 29, 2007

**Section 2PS1**

Miscellaneous Records & Reports:
WINCDMS Gaseous Effluents Modules Verification & Validation

**Section 4OA1**
PNPS-RPT-05-006, Revision 0, Pilgrim Nuclear Power Station Mitigating Systems Performance Index (MSPI) Basis Document
PNPS Mitigating Systems Performance Indicator Records 3Q07, 4Q07, 1Q08
NEI 99-02, Revision 5, Regulatory Assessment Performance Indicator Guidelines

**Section 4OA2**

Condition Reports
CR-PNP-2004-00357, 2005-01857, 2005-01890, 2005-01979, 2005-01981, 2005-02024, 2005-02056, 2005-02139, 2005-02357, 2005-03023, 2007-01710, 2007-01741, 2007-01821, 2007-01913, 2007-01934, 2007-01953, 2007-01959, 2007-01981, 2007-02014

Engineering Evaluations
CR-PNP-2005-03023, Apparent Cause Evaluation, dated 7/13/05
CR-PNP-2007-01913, Apparent Cause Evaluation, dated 11/7/07
CR-PNP-2007-02014, Revision 0, Human Performance Error Review

CR-PNP-2007-02491, Revision 0, Apparent Cause Evaluation
CR-PNP-2007-04190/04191, Revision 0, Apparent Cause Evaluation
PNPS-NE-07-00001, Lost Part Analysis for Items Identified during Pilgrim RFO16 IVVI, dated 5/2/07
PNPS-NE-07-00002, Lost Part Analysis for Items Identified during Pilgrim RFO16 IVVI, dated 4/27/07
PNPS-NE-07-00003, Lost Part Analysis for Items Identified during Pilgrim RFO16 IVVI, dated 4/30/07
PNPS-NE-07-00005, Lost Part Analysis for Items Identified during Pilgrim RFO16 IVVI, dated 5/2/07

Miscellaneous
CAR 42942, FME Events, Pilgrim Upper Support Replacement RFO-16 Corrective/Preventive Actions
Customer Review, dated 9/26/07
INR-P1R16-IVVI-07-16, R2 – RPV Bottom Head FME, dated 4/17/07
INR-P1R16-IVVI-07-22-FME @ 45° Core Plate Wedge, dated 4/23/07
LP#: O-RQ-04-04-52, Revision 0, JIT Super Crew Shutdown Training RFO-16
RFO 16 Lessons Learned OLPs
Risk-Informed Inspection Notebook for Pilgrim Nuclear Power Station Unit 1, Revision 2.1a

Operating Experience
NRC Information Notice 80-25, Operating Problems with Target Rock Safety-Relief Valves at BWRs, dated 12/19/80
NRC Information Notice 85-13, Consequences of Using Soluble Dams, dated 2/21/85

Procedures
2.1.36, Revision 3, Object Retrieval from Reactor Cavity and Spent Fuel Pool
EN-MA-118, Revision 3, Foreign Material Exclusion
TP06-019, Revision 4, Reactor Vessel Bottom Head Drain Line Project

Self Assessments
LO-PNPLO-2006-00010, FME, dated 5/8/06
LO-PNPLO-2006-00036, Snapshot Assessment / Benchmark on: Reactor Vessel & Spent Fuel Pool FME Control, dated 8/2/06
LO-PNPLO-2006-00146, FME Benchmark Pickering Plant, dated 10/2/06

System Health Reports & Trending
03 - CRD Hydraulic System Health Report, 4th Qtr 2006 - 2nd Qtr 2008
49 - Nuclear Fuel System Health Report, 2nd Qtr 2007
Coolant Cs-134/137 Activity, April 2007 – July 2008
Coolant Sr91-92, April 2007 – July 2008
DEI & Total Iodine, April 2007 – July 2008
Fuel Integrity, Effluents, and Fuel Pool Trends Meeting Summary, dated 8/15/07, 10/17/07, 12/19/07, 2/20/08, 4/16/08, and 6/18/08
I-131: I-133 Ratio, April 2007 – July 2008
Offgas Release Rate, April 2007 – July 2008
Offgas Slope, April 2007 – July 2008
SURV. No. 17-01, Control Rod Scram Insertion Timing Analysis Sheet, dated 5/10/07
SURV. No. 17-04, Control Rod Scram Insertion Timing Analysis Sheet, dated 4/29/08

SURV. No. PWT 42-39, Control Rod Scram Insertion Timing Analysis Sheet, dated 4/9/08
Xe-133 Release Rate, April 2007 – July 2008
Xe-135 & Release Rate, April 2007 – July 2008
Xe-133: Xe-138 Ratio, April 2007 – July 2008

## LIST OF ACRONYMS

| | |
|---|---|
| ADAMS | Agencywide Documents Access and Management System |
| ALARA | As Low As Reasonably Achievable |
| ASME | American Society of Mechanical Engineers |
| CEDE | Committed Effective Dose Equivalent |
| CFR | Code of Federal Regulations |
| CRHEAFs | Control Room High Efficiency Air Filtration system |
| CR | Condition Report |
| CST | Condensate Storage Tank |
| DRP | Division of Reactor Projects |
| DRS | Division of Reactor Safety |
| EAL | Emergency Action Level |
| EDG | Emergency Diesel Generator |
| EPD | Electronic Personal Dosimeter |
| FME | Foreign Material Exclusion |
| HPCI | High Pressure Coolant Injection |
| HXs | Heat Exchangers |
| IP | Inspection Procedure |
| IR | Inspection Report |
| IVVI | In-Vessel Video Inspection |
| LER | Licensee Event Report |
| LPCI | Low Pressure Coolant Injection |
| MCC | Motor Control Center |
| NCV | Non-Cited Violation |
| NEI | Nuclear Energy Institute |
| NRC | Nuclear Regulatory Commission |
| OE | Operating Experience |
| PARS | Publicly Available Records |
| PI | Performance Indicator |
| PMT | Post Maintenance Test |
| PNPS | Pilgrim Nuclear Power Station |
| RBCCW | Reactor Building Closed Cooling Water |
| RCIC | Reactor Core Isolation Cooling |
| RCS | Reactor Coolant System |
| RFO | Refueling Outage |
| RHR | Residual Heat Removal |
| RPV | Reactor Pressure Vessel |
| RWP | Radiation Work Permit |
| SCBA | Self Contained Breathing Apparatus |
| SDP | Significance Determination Process |
| SRV | Safety Relief Valve |

| | |
|---|---|
| SSC | Structure, Systems, and Components |
| SSW | Salt Service Water |
| TS | Technical Specification |
| UAT | Unit Auxiliary Transformer |
| UFSAR | Updated Final Safety Analysis Report |
| URI | Unresolved Item |