March 15, 2007

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 LICENSE RENEWAL INSPECTION REPORT 05000293/2006007

Dear Mr. Bronson:

On October 6, 2006, an NRC team completed the onsite portion of its inspection of your application for license renewal of your Pilgrim Nuclear Power Station. One inspector returned on December 7 and 8, 2006 to inspect your resolution of an NRC-identified concern. The enclosed report documents the results of the inspection, which were discussed on January 30, 2006, with you and members of your staff in an exit meeting open for public observation in Plymouth, Massachusetts.

The purpose of this inspection was to examine the plant activities and documents that support the application for a renewed license of Pilgrim Nuclear Power Station. The inspection reviewed the screening and scoping of non-safety related systems, structures, and components, as required in 10 CFR 54.4(a)(2), and determined whether the proposed aging management programs are capable of reasonably managing the effects of aging. These NRC inspection activities constitute one of several inputs into the NRC review process for license renewal applications.

The inspection team concluded screening and scoping of non-safety related systems, structures, and components were implemented as required in 10 CFR 54.4(a)(2), and the aging management portion of the license renewal activities was conducted as described in the License Renewal Application. The inspection concluded that the documentation supporting the application was in an auditable and retrievable form. The team identified a number of areas that resulted in changes to the application, programs, and procedures.

Overall, the inspection results support a conclusion that the proposed activities will reasonably manage the effects of aging in the systems, structures, and components identified in your application and that the intended functions of these systems, structures, and components will be maintained in the period of extended operation. However, the inspection identified one program area (drywell shell monitoring), which has resulted in an open item in the safety evaluation report (SER) issued by the Office of Nuclear Reactor Regulation (NRR) on March 1, 2007. Also, the inspection team could not reach a determination on another program (instrumentation circuits testing) due to additional program development by the industry.

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

Sincerely,

/RA/

Richard J. Conte, Chief
Engineering Branch 1
Division of Reactor Safety

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

Enclosure: Inspection Report 05000293 /2006007

cc w/encl:
G. J. Taylor, Chief Executive Officer, Entergy Operations
M. Kansler, President, Entergy Nuclear Operations, Inc.
J. T. Herron, Senior Vice President
M. Balduzzi, Senior Vice President, Northeastern Regional Operations
C. Schwarz, Vice-President, Operations Support
S. J. Bethay, Director, Nuclear Safety Assurance
O. Limpias, Vice President, Engineering
J. F. McCann, Director, Licensing
C. D. Faison, Manager, Licensing
R. Patch, Director of Oversight, Entergy Nuclear Operations, Inc.
B. S. Ford, Manager, Licensing, Entergy Nuclear Operations, Inc.
T. C. McCullough, Assistant General Counsel
S. Lousteau, Treasury Department, Entergy Services, Inc.
Director, Radiation Control Program, Commonwealth of Massachusetts
C. White, RRPT, CHP, Radiological Health, Vermont Department of Health
The Honorable Therese Murray
The Honorable Vincent deMacedo
Chairman, Plymouth Board of Selectmen
Chairman, Duxbury Board of Selectmen
Chairman, Nuclear Matters Committee
Plymouth Civil Defense Director
D. O'Connor, Massachusetts Secretary of Energy Resources
J. Miller, Senior Issues Manager
Office of the Commissioner, Massachusetts Department of Environmental Protection
Office of the Attorney General, Commonwealth of Massachusetts
Electric Power Division, Commonwealth of Massachusetts
R. Shadis, New England Coalition Staff

D. Katz, Citizens Awareness Network
Chairman, Citizens Urging Responsible Energy
J. Sniezek, PWR SRC Consultant
M. Lyster, PWR SRC Consultant
W. Meinert, Nuclear Engineer
J. Muckerheide, MEMA and Commonwealth of Massachusetts, SLO Designee
Commonwealth of Massachusetts, Secretary of Public Safety

Distribution w/encl: **(VIA E-MAIL)**
S. Collins, RA
M. Dapas, DRA
J. Lamb, RI OEDO
R. Powell, DRP
B. Bickett, DRP
J. Kim, PM, NRR
J. Boska, NRR
J. Lubinski, NRR
P. Buckberg, NRR
W. Raymond, DRP, Senior Resident Inspector
C. Welch, DRP, Resident Inspector
A. Ford, DRP, Resident OA
Region I Docket Room (with concurrences)
ROPreports@nrc.gov
A. Blough, DRS
M. Gamberoni, DRS
R. Conte, DRS
G. Meyer, DRS
S. Uttal, OGC

SUNSI Review Complete: RJC (Reviewer's Initials)

DOCUMENT NAME: C:\FileNet\ML070750055.wpd
After declaring this document "An Official Agency Record" it **will** be released to the Public.
To receive a copy of this document, indicate in the box: "**C**" = Copy without attachment/enclosure "**E**" = Copy with attachment/enclosure "**N**" = No copy

OFFICE	RI/DRS		RI/DRP		RI/DRS					
NAME	GMeyer (GWM)		RPowell (RJP)		RConte (RJC)					
DATE	03/14/07		03/15/07		03/15/07					
OFFICE										
NAME										
DATE										

OFFICIAL RECORD COPY

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No:	50-293
License No:	DPR-35
Report No:	05000293/2006007
Licensee:	Entergy Nuclear Operations, Inc. (Entergy)
Facility:	Pilgrim Nuclear Power Station
Location:	600 Rocky Hill Road Plymouth, MA 02360
Dates:	September 18 - 22, 2006 October 2 - 6, 2006 December 6 - 7, 2006
Inspectors:	G. Meyer, Team Leader, Division of Reactor Safety (DRS) P. Kaufman, Sr. Reactor Inspector, DRS J. Richmond, Sr. Reactor Inspector, DRS S. Chaudhary, Health Physicist, Div. of Nuclear Materials Safety (DNMS) D. Johnson, Reactor Inspector, DRS S. Lewis, Reactor Inspector, DRS T. O'Hara, Reactor Inspector, DRS
Approved By:	Richard J. Conte, Chief Engineering Branch 1 Division of Reactor Safety

Enclosure

SUMMARY

IR 05000293/2006007; 09/18/2006 - 12/07/2006; Pilgrim Nuclear Power Station; Inspection of the Scoping of Non-Safety Systems and the Proposed Aging Management Procedures for the Pilgrim Nuclear Power Station Application for Renewed License.

This inspection of license renewal activities was performed by seven regional office inspectors. The inspection was performed in accordance with NRC Manual Chapter 2516 and NRC Inspection Procedure 71002. This inspection did not identify any findings as defined in NRC Manual Chapter 0612. The inspection team concluded screening and scoping of non-safety related systems, structures, and components were implemented as required in 10 CFR 54.4(a)(2), and the aging management program portions of the license renewal activities were conducted as described in the License Renewal Application. The inspection concluded the documentation supporting the application was in an auditable and retrievable form. The team identified a number of areas that resulted in changes to the application, programs, and procedures.

Overall, the inspection results support a conclusion that the proposed activities will reasonably manage the effects of aging in the systems, structures, and components identified in your application and that the intended functions of these systems, structures, and components will be maintained in the period of extended operation. However, the inspection identified one program area (drywell shell monitoring), which has resulted in an open item in the safety evaluation report (SER) issued by the Office of Nuclear Reactor Regulation (NRR) on March 1, 2007. Also, the inspection team could not reach a determination on another program (instrumentation circuits testing) due to additional program development by the industry.

TABLE OF CONTENTS

Page

SUMMARY ii

TABLE OF CONTENTS iii

4. OTHER ACTIVITIES (OA) 1
- 4OA2 Other - License Renewal 1
  - a. Inspection Scope (IP 71002) 1
  - b.1. Scoping of Non Safety-Related Systems, Structures, and Components. 1
  - b.2. Aging Management Programs 3
    - Containment Inservice Inspection Program 3
    - Inservice Inspection (ISI) Program 4
    - Containment Leak Rate Program 5
    - Diesel Fuel Monitoring Program 5
    - Lube Oil Analysis Program 6
    - Heat Exchanger Monitoring Program 7
    - Buried Piping and Tanks Inspection Program 8
    - Structural Monitoring Program 8
    - Masonry Wall Program 10
    - Water Control Structures Monitoring Program 10
    - Instrument Air Quality Program 11
    - Periodic Surveillance and Preventive Maintenance Program 11
    - Service Water Integrity Program 12
    - Metal-Enclosed Bus Inspection Program 13
    - Non-EQ Insulated Cables and Connections Program 13
    - Non-EQ Instrumentation Circuits Test Review Program 14
    - Non-EQ Inaccessible Medium - Voltage Cable 14
    - One-Time Inspection Program 15
    - Selective Leaching Program 15
    - System Walkdown Program 16
    - Flow Accelerated Corrosion Program 16
    - Water Chemistry Control Programs 17
    - Boiling Water Reactor Feedwater Nozzle Program 18
    - Boiling Water Reactor Stress Corrosion Cracking Program 19
    - Fire Protection Program 20
    - Fire Water System Program 20
  - b.3. System Review 21
    - Reactor Building Closed Cooling Water System Review 21
    - High Pressure Coolant Injection System Review 21
  - c. Overall Conclusions 22
- 40A6 Meetings, Including Exit 22

SUPPLEMENTAL INFORMATION A-1
- KEY POINTS OF CONTACT A-1
- LIST OF DOCUMENTS REVIEWED A-1
- LIST OF ACRONYMS A-10

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Other - License Renewal

a. Inspection Scope (IP 71002)

This inspection was performed by NRC Region I based inspectors to evaluate the thoroughness and accuracy of the screening and scoping of non-safety related systems, structures, and components, as required in 10 CFR 54.4(a)(2) and to evaluate whether aging management programs will be capable of managing identified aging effects in an appropriate manner.

The inspectors selected a number of systems, components, and structures for review to determine if the methodology applied by the applicant appropriately addressed the non-safety systems affecting the safety functions of a system, structure, or component within the scope of license renewal.

The inspectors selected a sample of aging management programs to verify the adequacy of Entergy's guidance, implementation activities, and documentation. The selected aging management programs were reviewed to determine whether the proposed aging management implementing processes would adequately manage the effects of aging.

The inspectors reviewed supporting documentation and interviewed applicant personnel to confirm the accuracy of the license renewal application conclusions. For a sample of plant systems and structures, the inspectors performed visual examinations of accessible portions of the systems to observe aging effects.

b.1. Scoping of Non Safety-Related Systems, Structures, and Components

For scoping and screening, the inspectors reviewed Entergy's program guidance procedures and summaries of scoping and screening results for Pilgrim to assess the thoroughness and accuracy of the methods used to bring systems, structures, and components within the scope of license renewal into the application and to screen non-safety related systems, structures, and components, as required in 10 CFR 54.4(a)(2). The inspectors determined Entergy's procedures to be consistent with the NRC accepted guidance in Sections 3, 4, and 5 of Appendix F to NEI 95-10, Revision 5 (3: non-safety related systems, structures, and components within scope of the current licensing basis, 4: non-safety related systems, structures, and components directly connected to safety-related systems, structures, and components, and 5: non-safety related systems, structures, and components not directly connected to safety-related systems, structures, and components).

The inspectors reviewed the set of license renewal drawings, which had been color-coded to indicate systems and components in scope for 10 CFR 54.4.(a)(1) and (a)(3). The inspectors interviewed personnel, reviewed license renewal program documents,

and independently inspected numerous areas within the plant to confirm that appropriate systems, structures, and components had been included within the license renewal scope, that systems, structures, and components excluded from the license renewal scope had an acceptable basis, and that the boundary for determining license renewal scope within the systems, including seismic supports and anchors, was appropriate.

The in-plant areas and systems reviewed included the following:

- Reactor Building;
- Turbine Building;
- Intake Structure;
- Ventilation Stack;
- Station Blackout (SBO) Diesel Generator Building;
- Diesel Generator Rooms;
- High Pressure Coolant Injection (HPCI) System
- Reactor Building Closed Cooling Water (RBCCW) System
- Standby Liquid Control (SLC) System
- Standby Gas Treatment System
- Fire Protection System;
- Nitrogen Supply System;
- Compressed Air/Instrument Air System; and
- Service Water System.

For systems, structures, and components selected regarding spatial interaction (failure of nonsafety-related components adversely affecting safety-related components), the inspectors confirmed that the in-plant configuration had been accurately and acceptably categorized within the license renewal program documents. The inspectors determined the personnel involved in the process were knowledgeable and appropriately trained.

For systems, structures, and components selected regarding structural interaction (seismic design of safety-related components dependent upon nonsafety-related components), the inspectors determined that an erroneous assumption had caused incorrect structural boundaries, which had resulted in incorrect categorization within the license renewal program documents. Specifically, the inspectors determined that Entergy had misinterpreted existing piping symbols on the piping and instrumentation drawings (P&IDs) to represent seismic design boundaries. In particular, by inspecting the configuration in the plant of the standby liquid control system and the standby gas treatment portion of the compressed air system, the inspectors determined that incorrect boundaries had resulted, which had caused some non-safety related piping and components to be incorrectly omitted from the license renewal scope.

Entergy agreed to re-evaluate questionable structural interaction boundaries using correct assumptions and to revise scoping determinations and documents.

An inspector returned on December 6 and 7, 2006, to follow up on the re-evaluated structural boundaries. Entergy had reviewed the interfaces between safety-related and non-safety related systems to determine questionable structural interaction boundaries, had re-determined the structural boundaries based on system seismic analyses, had walked down plant configurations to confirm accurate structural boundaries, and was revising program documents to reflect the correct boundaries.

The inspector reviewed the results of the re-evaluation, reviewed isometric drawings used to determine boundaries, interviewed the structural engineer and system engineer involved in the re-evaluations, and visually inspected a majority of the applicable plant configurations. The inspector concluded that the re-evaluation had produced accurate scoping determinations for structural interaction and that piping, supports, and components had been acceptably categorized. In addition, this area was addressed under item 586 of Attachment D to License Renewal Application Amendment 10, issued on December 12, 2006.

As revised, the inspectors concluded that Entergy had implemented an acceptable method of scoping and screening of non-safety related systems, structures, and components and that this method resulted in accurate scoping determinations.

b.2. Aging Management Programs

Containment Inservice Inspection Program

The Containment Inservice Inspection Program (American Society of Mechanical Engineers (ASME) Code, Section XI, Subsection IWE Program) is an existing program modified for the purpose of aging management and is credited with managing the aging effects in primary containment systems, i.e., drywell and torus. ASME Section XI, Subsection IWE provides for inspection of primary containment components and the containment vacuum breaker system piping and components. It covers steel containment shells and their integral attachments, containment hatches and airlocks, seals and gaskets, containment vacuum breaker system piping and components, and pressure retaining bolting. The aging effects are managed by periodic visual inspections and periodic ultrasonic testing wall thickness measurements.

The inspectors interviewed the program owner; reviewed the existing program documents, the results (data sheets) from program inspections, and applicable corrective action documents; and performed a walkdown of the torus room to assess the condition of the outside of the torus. The inspector reviewed the commitments contained in the Pilgrim response letter to Generic Letter 87-05, “Request for Additional Information - Assessment of Licensee Measures to Mitigate and/or Identify Potential Degradation of Mark I Drywells.”

The inspectors evaluated whether prior leakage could have adversely affected the outside of the drywell shell. Entergy noted that there is no record of an incident or event during which leakage occurred, that the drywell design incorporates multiple drains to prevent leakage from affecting the drywell shell, including an alarmed flow switch in a

drain, and that ultrasonic testing (UT) measurements of the shell have confirmed nominal shell thickness. Nonetheless, the inspectors noted the following:

- On September 19, 2006, and on multiple prior occasions, water was found on the torus room floor, potentially indicative of leakage affecting the drywell.
- The flow switch failed its surveillance test in December 2005 due to clogging and had not been repaired.
- Monitoring of applicable drains has been inconclusive, in that records indicated negligible results.

The inspectors noted that NRC License Renewal Interim Staff Guidance LR-ISG-2006-01 specifies that if "moisture has been detected or suspected" on the exterior of the drywell, then augmented inspections should be performed and "surfaces accessible from one side only shall be examined for wall thinning using [UT]". During the inspection Entergy had no plans to perform future UT inspections. Subsequently, after consultation with the NRC inspection team, the Office of Nuclear Reactor Regulation (NRR) issued Request for Additional Information (RAI) B.1.16.1 on November 7, 2006 on this issue. The Entergy response is contained in Attachment B to License Renewal Application Amendment 10, issued on December 12, 2006. In addition, NRC Safety Evaluation Report (SER) Open Item (OI 3.0.3.3.2) addresses this issue. On January 29, 2007, Entergy submitted plans to perform future drywell UT inspections. Ultimate resolution of this issue will therefore be documented by NRR in a future revision to the SER.

For the Containment Inservice Inspection Program other than the drywell shell, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and plant historical reviews, to determine appropriate aging effects.

Inservice Inspection (ISI) Program

The Inservice Inspection Program (ASME Section XI, Subsection IWF Program) is an existing program credited with managing the aging effects on ASME Section XI Class 1, 2, 3 and MC components and piping support members for loss of mechanical function and loss of material. Bolting is also included with these components. The aging effects are managed by periodic visual examinations for corrosion and loss of material in structural members, and loss of preload in bolting; missing, detached, or loosened members or bolts; and any degradation of protective coatings. The program has been enhanced by including additional MC components in the approved ASME Section XI, Inservice Inspection program.

The inspectors reviewed the program description, program basis documents, the currently approved ASME Section XI, Subsection IWF program, and the results of previous inspections and examinations. The documents reviewed and discussions with cognizant individuals indicated the operating experience of the Inservice Inspection Program at Pilgrim, which includes ASME Section XI, Subsection IWF aging management activities, has not shown any adverse trend. Periodic self-assessments of the program have been performed to identify the areas that need improvement to maintain the quality and integrity of the program.

For the Inservice Inspection Program, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Containment Leak Rate Program

The Containment Leak Rate Program is an existing program which monitors the leak rate from the primary containment and complies with the regulations of 10 CFR Part 50, Appendix J. The containment leak rate tests assure that leakage through the primary containment and connected systems is within allowable limits, and periodic surveillance testing of containment penetrations and isolation valves is performed so that appropriate maintenance and repairs are performed.

The inspector reviewed the existing program and implementing procedures, interviewed the program owner, reviewed the results from the past three containment integrated leak rate tests (ILRTs), and reviewed the historical results and trends from past ILRTs over the past 34 years of operation. All regulatory requirements were met.

For the Containment Leak Rate Program, the inspectors concluded that the program has an acceptable record of complying with 10 CFR Part 50, Appendix J and that Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine the appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Diesel Fuel Monitoring Program

The Diesel Fuel Monitoring Program is an existing program that will be enhanced to manage the effects of fouling and loss of material (corrosion) of diesel fuel systems. The aging effects are managed by a combination of periodic chemistry sampling and analysis, and periodic fuel oil tank inspections. The enhancements will add selected systems within the scope of license renewal that need periodic monitoring of aging effects and were not previously included in this existing periodic monitoring program.

The existing fuel oil monitoring program, associated chemistry procedures, and analysis reports of the condition of fuel oils were reviewed to determine the effectiveness of the existing program. The inspectors also reviewed tank inspection records to verify that the results were within the acceptable range. In addition, the inspectors reviewed the schedule for implementation of the enhancements.

The inspectors identified that the fire pump diesel fuel oil tank was not included in the enhanced fuel monitoring program. To address this concern in the proposed program, Entergy committed to include periodic ultrasonic thickness measurements of the bottom surface of the fire pump diesel day tank, and establish acceptance criteria and inspection locations by engineering analysis. The first inspection will occur prior to the period of extended operation. Subsequent test intervals will be determined based on the results of the first inspection. Subsequently, this commitment was addressed under item 565 in License Renewal Application Amendment 9, issued on October 6, 2006.

The inspectors identified that the enhanced fuel monitoring program for the security diesel fuel oil only specified sampling for water content. To address this concern in the proposed program, Entergy committed to include quarterly sampling of the security diesel fuel oil for particulates, water, and sediment. Acceptance criteria will be established based on engineering evaluations. Subsequently, this commitment was addressed under item 566 in License Renewal Application Amendment 9, issued on October 6, 2006.

For the Diesel Fuel Monitoring Program, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. As amended, Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Lube Oil Analysis Program

The Lube Oil Analysis Program is an existing program that will be enhanced to manage the effects of loss of material (corrosion) in lubricating oil systems. The aging effects are managed by a combination of periodic chemistry sampling and analysis, and periodic replacement of lube oil. The enhancements will add selected systems within the scope of license renewal that need periodic monitoring of aging effects and were not previously included in the existing periodic monitoring program.

The inspectors reviewed the existing lube oil analysis program, supporting chemistry procedures, and analysis reports of the condition of lube oils to determine the effectiveness of the existing program.

The inspectors identified that the existing program methodology and acceptance criteria differed from applicable industry codes and standards, and the acceptance criteria and required actions were not contained within approved station procedures. To address this concern in the proposed program, Entergy committed to proceduralize the program elements described in LRPD-02, "Aging Management Program Analysis Program," for the Lube Oil Analysis Program prior to the period of extended operation. The program elements will include appropriate acceptance criteria and corrective actions in the event that acceptance criteria are not satisfied. The periodic sampling will include the parameters specified in NUREG-1801, Section XI.M39, "Lubricating Oil Analysis." In addition, Entergy committed to provide a documented basis for the acceptance criteria. Subsequently, these commitments were addressed under items 553 and 589 of Attachment D to License Renewal Application Amendment 10, issued on December 12, 2006.

During the inspection Entergy had not documented the actions to be implemented in detail. Therefore, the inspectors could not fully assess the effectiveness of the proposed program enhancements.

For the Lube Oil Analysis Program the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. As amended, Entergy provided adequate guidance to ensure aging effects will be appropriately identified and addressed.

Heat Exchanger Monitoring Program

The Heat Exchanger Monitoring Program is a new program under development at Pilgrim. The program is credited with managing the aging effects of loss of material (corrosion) for heat exchanger tubes, heads, covers, and tube sheets, for those heat exchangers within the scope of license renewal that need periodic monitoring of aging effects and are not covered by other existing periodic monitoring programs. The aging effects will be managed by periodic visual inspections and non-destructive examinations of selected heat exchangers in the program.

The inspectors identified that the proposed program did not specify the criteria to determine which heat exchangers within the program's scope would be selected for inspection. In addition, the proposed program did not identify inspection frequency or acceptance criteria bases. To address this concern in the proposed program, Entergy committed to select heat exchangers for inspection based on the materials of construction and associated environments, as well as the type of heat exchanger. At least one heat exchanger of each type, material, and environment combination will be included in the selected population to be examined. In addition, Entergy committed to perform eddy current examinations at a frequency consistent with applicable industry standards and evaluate the results against acceptance criteria determined by component specific engineering evaluations. Subsequently, these commitments were addressed under items 526 and 583 of Attachment D to License Renewal Application Amendment 10, issued on December 12, 2006.

The program, as revised, will provide inspection and acceptance criteria, and will evaluate the inspection results. Inspections will be performed in accordance with approved station procedures. Inspection methods will include visual examinations on accessible heat exchanger heads, covers, and tube sheets, as well as eddy current non-destructive examinations of tube wall thickness, where practical. The examinations will be performed at a frequency determined by internal and external operating experience. The program will be initiated prior to the period of extended operation. Based on review of the proposed scope, parameters to be monitored, method of monitoring, and acceptance criteria, the inspectors determined that the proposed heat exchanger monitoring program, when implemented as planned, will provide assurance that heat exchangers are routinely evaluated for age-related degradation of loss of material.

For the Heat Exchanger Monitoring Program, the inspectors concluded that Entergy had performed adequate evaluations, including industry experience and historical reviews, to determine appropriate aging effects. As amended, Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Buried Piping and Tanks Inspection Program

The Buried Piping and Tanks Inspection Program is a new program credited with managing the loss of material aging effects on the external surfaces of piping in a soil environment, including the service water, standby gas treatment, and condensate transfer systems. The aging effects are to be managed by preventive measures, i.e., coatings and wrappings, and inspections to manage the effects of corrosion on component surfaces. As described in Appendix B, Part 1.2 of the application, Entergy plans to perform a focused inspection within the first 10 years of the period of extended operations.

The inspectors reviewed the program basis document, system drawings, and documented corrective action reviews, and interviewed the responsible plant personnel regarding these documents and inspection criteria to be used. Also, the inspectors walked down the service water, standby gas treatment, and condensate transfer systems in the vicinity of buried piping. The inspectors noted that the new program would not have any inspections until the period of extended operation. The inspectors discussed this with Entergy, and they agreed to perform at least one inspection of buried piping prior to the period of extended operation and to clarify this within program procedures.

For the Buried Piping and Tanks Inspection Program, the inspectors concluded that Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. As revised, Entergy provided adequate guidance to ensure the aging effects are appropriately identified and addressed.

Structural Monitoring Program

The Structural Monitoring Program is an existing program that has been modified and will be further enhanced to include additional structures and structural components, including structural bolting, into the program. The program was developed based on guidance in Regulatory Guide 1.160 Revision 2, “Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” and NUMARC 93-01 Revision 2, “Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” to satisfy the requirement of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.” The scope of the program also includes condition monitoring of masonry walls and water-control structures as described in the Masonry Wall Program and of Water-Control Structures Monitoring Program (discussed separately below). The enhancements to the program include the addition of items (such as seals, gaskets, seismic joint fillers, roof elastomers) that are not currently monitored but need monitoring during the period of extended operation.

Aging effects are managed by periodic visual inspections by qualified personnel to monitor structures and components for applicable aging effects. Specifically, concrete structures are inspected for loss of material, cracking, and a change in material properties. Steel components are inspected for loss of material due to corrosion.

Component supports will be inspected for loss of material, reduction or loss of isolation function, and reduction in anchor capacity due to local concrete degradation. Exposed surfaces of bolting are monitored for loss of material (corrosion), loose nuts, missing bolts, or other indications of loss of preload.

The inspectors reviewed the program description, program basis documents, approved station procedures, and results of prior inspections, held discussions with cognizant personnel, and performed a walkthrough visual examination of accessible structural items, including reinforced concrete and structural steel members, components and systems to assess the effectiveness of the current program. The inspectors reviewed station procedures, maintenance history, prior inspection findings and followup, and current inspection schedules. Inspection frequency is every three (3) years for accessible areas, and every ten (10) years for normally inaccessible areas. The program contains provisions for more frequent inspections to ensure that observed conditions that have the potential for impacting an intended function are evaluated or corrected in accordance with the corrective action process. The Structures Monitoring Program is consistent with the ten elements of aging management program XI.S6,"Structures Monitoring Program," specified in the Generic Aging Lessons Learned (GALL) Report (NUREG 1801).

The inspectors noted that the structural monitoring inspections documented the acceptability of structures but did not address the applicable conditions of the structure which existed. The lack of condition information would prevent trending and monitoring of any condition, which though acceptable, might further degrade. To address this concern in the proposed program, Entergy stated that this insight would be incorporated within procedural changes underway to upgrade procedural guidance for all structural monitoring programs to provide sufficient descriptions of conditions during inspections to enable effective monitoring and trending.

The inspectors noted that Entergy plans to inspect normally inaccessible areas every 10 years. Nonetheless, some areas of the concrete foundation of the plant stack (a safety-related structure) have not been inspected due to radiation concerns (ALARA considerations), and there were no plans to inspect the foundation. While the inspectors agreed that ALARA considerations could prevent periodic inspections, an inspection was appropriate. To address this concern in the proposed program, Entergy committed to perform an inspection of the previously uninspected areas of the plant stack foundation. Subsequently, this commitment was addressed under item 581 of Attachment D to License Renewal Application Amendment 10, issued on December 12, 2006.

For the Structural Monitoring Program, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. As amended, Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Masonry Wall Program

The Masonry Wall Program is an existing program, which is a part of the existing Structural Monitoring Program. The Masonry Wall Program is credited with managing the aging effects in masonry walls. The aging effects are managed by a program of inspection of masonry walls for cracking on a frequency of 3 years to assure that the established evaluation basis for each masonry wall remains valid during the period of extended operation. Elastomers will be monitored for change in material properties.

The inspectors reviewed the program description, the program basis documents, the approved station procedures, and the results of prior inspections; held discussions with cognizant personnel; and performed a walkthrough visual examination of accessible masonry walls to assess the effectiveness of the current program. The scope of the program includes all masonry walls that perform intended functions in accordance with 10 CFR 54.4, and were covered by I. E. Bulletin 80-11 “Masonry Wall Design." The inspections are implemented through station procedures. Maintenance history has not revealed any degradation (such as cracks) of masonry block walls, providing evidence that the walls continue to provide their intended design function. In response to I.E. Bulletin 80-11, and Information Notice 87-67, “Lessons Learned from Regional Inspections of Licensee Actions in Response to I.E. Bulletin 80-11," various actions have been taken, including program enhancements and follow-up inspections to substantiate masonry wall analyses and classifications. These actions have addressed all concerns raised by I.E. Bulletin 80-11 and Information Notice 87-67, namely, unanalyzed conditions, improper assumptions, improper classification, and lack of procedural controls. A review of operating experience at Pilgrim indicated that the program is effective for managing aging effects of masonry walls.

For the Masonry Wall Program, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Water Control Structures Monitoring Program

The Water Control Structures Monitoring Program is an existing program modified for the purpose of aging management program and is credited with managing the aging effects in water control structures and systems. The aging effects are managed by periodic inspections of the water control structures for structural and hydraulic degradation, and potential loss of function for intended service. The water control structure aging management program is a subpart of the main Structures Monitoring Program. It is based on the guidance provided in RG 1.127 and ACI 349.3R and will provide for periodic inspection of water control structures (breakwaters, jetties, and revetments). The program will be used to manage loss of material, cracking, and change in material properties for concrete components; loss of material and change in material properties for wooden components; and loss of material and loss of form (such as subsidence, settlement, leaks, and bowing) for dikes and embankments. Inspection

frequency is every five (5) years. The program will be enhanced to ensure that water-control structural aging effects are adequately managed during the period of extended operation.

The inspectors reviewed the program description, program basis documents, approved station procedures, and results of prior inspections; interviewed cognizant personnel; and visually examined accessible water control structures to assess the effectiveness of the current program. As the Water Control Structures Monitoring Program is a subpart of the larger structural monitoring program, this review was performed in conjunction with the comprehensive review of the main Structural Monitoring Program. The Water Control Structures Monitoring Program is consistent with the ten elements of aging management program XI.S7, "RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants," specified in the GALL Report.

For the Water Control Structures Monitoring Program, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Instrument Air Quality Program

The Instrument Air Quality Program is an existing program that will be enhanced to manage the effects of loss of material (corrosion) on components supplied with instrument air by ensuring that the instrument air is free of water and significant contaminants. The aging effects are managed by periodic samples for dew point, oil mist, and particulate. The existing program will be enhanced to include additional sample locations in the instrument air system at susceptible locations.

The inspectors reviewed the existing Pilgrim procedures for instrument air quality sampling, the proposed enhanced sampling points, as well as recent sample results to verify that results were within the acceptable range.

For the Instrument Air Quality Program, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Periodic Surveillance and Preventive Maintenance Program

The Periodic Surveillance and Preventive Maintenance Program is an existing program that will be expanded to include selected systems within the scope of license renewal that need periodic monitoring of aging effects and are not covered by other existing periodic monitoring programs. The program will verify the integrity of the systems and manage any identified aging effects. The program will manage the aging effects of change in material properties, loss of material, and reduction of heat transfer capability for various systems and environments. The aging effects will be managed by periodic condition monitoring examinations performed at susceptible locations in the systems,

intended to assure that existing environmental conditions are not causing material degradation that could result in a loss of system intended functions. The periodic inspections will be performed on a pre-determined frequency, typically once every 5 years, during the period of extended operation.

This program will provide inspection and acceptance criteria, and will evaluate the inspection results. Inspections will be performed in accordance with station procedures that are based on applicable codes and standards. Inspection methods may include visual examinations of disassembled components or volumetric non-destructive examination techniques. The inspectors reviewed the proposed periodic inspection table, which contained a listing of selected systems and components to be periodically inspected, parameters to be monitored, and inspection techniques, and acceptance criteria. Based on review of the proposed program, the inspectors determined that the Periodic Surveillance and Preventive Maintenance Program, when implemented as planned, will provide assurance that systems and components are routinely inspected for age related degradation of change in material properties, loss of material, and reduction of heat transfer capability for systems, components, and environments, and will adequately manage the identified aging effects.

For the Periodic Surveillance and Preventive Maintenance Program, the inspectors concluded Entergy had performed adequate evaluations, including industry experience and historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Service Water Integrity Program

The Service Water Integrity Program is an existing program credited with managing the maintenance of protective coatings and piping as well as the prevention of excess biofouling associated with the open cycle service water system. The aging effects are managed by surveillance tests and control techniques addressed by NRC Generic Letter 89-13 to manage the effects of material loss and fouling.

The inspectors reviewed the present program and its implementing procedures, interviewed the program owner, performed a walkdown of accessible portions of the service water system, reviewed service water system health reports, and reviewed numerous past instances where the corrective action system had identified and fixed aging degradation in the system.

For the Service Water Integrity Program ,the inspectors concluded that Entergy had performed adequate evaluations, as well as industry experience and plant historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects would be appropriately identified and addressed.

Metal-Enclosed Bus Inspection Program

The Metal-Enclosed Bus Inspection Program is a new program created for license renewal and is credited with managing the aging effects on the non-segregated phase bus, which connects 4.16kV switchgear. The purpose of the program is to visually inspect the enclosure assemblies and interior portions of the bus for structural integrity, signs of cracking, and water or debris.

At the time of the inspection, Entergy had just begun implementation of the actions identified in the program. Therefore, the inspector could not assess the implementation of this program. The inspector reviewed drawings, procedures and performed walkdowns to assure the proposed program will be capable of managing the aging effects. The inspector also had discussions with system engineers to determine what will be in scope of the proposed inspection program and the current conditions of the non-segregated bus.

For the Metal Enclosed Bus Inspection Program, the inspector concluded that Entergy performed adequate evaluations, which included industry experience and historical reviews, to determine appropriate aging effects. In program-level documents, Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Non-EQ Insulated Cables and Connections Program

The Non-EQ Insulated Cables and Connections Program is a new program created for license renewal and is credited with managing the aging effects of electrical cables and connections exposed to an adverse environment, but not subject to 10 CFR 50.49, “Environmental Qualification Requirements.” The goal of this program is to provide reasonable assurance that the intended functions of these insulated cables and connections can be maintained through the period of extended operation.

At the time of the inspection, Entergy had not completed any of the actions identified in the program. Therefore, the inspector could not assess the effectiveness of the implementation of this program. The inspector reviewed drawings, performed walkdowns, and had discussions with system engineers to assess the proposed program and assure it will be capable of managing aging effects.

For the Non-EQ Insulated Cables and Connections Program, the inspector concluded that Entergy performed adequate evaluations, which included industry experience and historical reviews, to determine appropriate aging effects. In program-level documents, Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Non-EQ Instrumentation Circuits Test Review Program

The Non-EQ Instrumentation Circuits Test Review Program is a new program created for license renewal and is credited with managing the aging effects of electrical cables and connections exposed to an adverse environment, but not subject to 10 CFR 50.49, "Environmental Qualification Requirements." The purpose of this program is to develop a method of reviewing calibration and surveillance test results to detect aging effects in circuits with sensitive, high voltage, low-level signals. Entergy plans to perform the review by using the results from current calibrations and functional tests to determine the aging effects on this equipment.

Because the GALL Report has not established programmatic standards for this program, and the testing parameters are being developed as part of an industry-wide initiative, the inspectors were unable to review implementation documents. Nonetheless, the inspectors interviewed plant personnel to understand the current status of the program and the level of understanding of cognizant plant engineers. The inspectors reviewed current procedures and a sample of completed surveillance tests to evaluate the current status of the program.

The inspectors concluded Entergy had performed adequate evaluations, which included industry experience and plant historical reviews, to determine appropriate aging effects. Because there is incomplete guidance in the GALL Report, the essential test parameters have not been established, and the aging management program is still being developed, the inspectors were unable to determine the acceptability of the proposed aging management program.

The team discussed this matter with the NRC program staff in the NRC Office of Nuclear Reactor Regulation; resolution of this issue will be coordinated between the NRC Region I and NRR offices.

Non-EQ Inaccessible Medium - Voltage Cable

The Non-EQ Inaccessible Medium-Voltage Cable Program is a new program created for license renewal which is credited with managing the aging effects of inaccessible 2KV to 35KV cables not subject to 10 CFR 50.49, "Environmental Qualification Requirements," and exposed to an adverse environment. The purpose of this program is to periodically inspect inaccessible cables for exposure to significant moisture and to evaluate the condition of the conductor insulation if exposed to significant moisture.

At the time of the inspection, Entergy had not completed any of the actions identified in the program. While the inspector was not able to thoroughly assess the effectiveness of the implementation of the program as a whole, Entergy does have a preliminary procedure in place for inspecting cables located in manholes. The inspector reviewed the procedure, performed walkdowns, and had discussions with system engineers on the effectiveness of the program regarding identifying age-related deficiencies.

For the Non-EQ Inaccessible Medium - Voltage Cable Program, the inspector concluded that Entergy performed adequate evaluations, which included industry experience and historical reviews, to determine appropriate aging effects. In program-level documents, Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

One-Time Inspection Program

The One-Time Inspection Program is a new aging management program intended to verify the effectiveness of other aging management programs, including Water Chemistry Control Programs, Nonsafety-Related Systems and Components Affecting Safety-Related Systems Program, and the Selective Leaching Program, by reviewing various aging effects for impact. Where corrosion resistant materials and/or non-corrosive environments exist, the One-Time Inspection Program is intended to verify that an aging management program is not needed during the extended period of operation by confirming that aging effects do not affect the safety functions of systems, structures, and components. Non-destructive evaluation will be performed by qualified personnel using procedures and processes consistent with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME) and 10 CFR 50, Appendix B. The One-Time Inspection Program will be implemented prior to the period of extended operation.

The inspectors reviewed the program description, implementation plan, and inspection sample basis, and discussed the planned activities with the responsible staff.

For the One-Time Inspection Program, the inspectors concluded Entergy had performed adequate evaluations, including reviews of industry experience and plant history, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Selective Leaching Program

The Selective Leaching Program is a new program credited with ensuring the integrity of components made of cast iron, bronze, brass, and other alloys exposed to raw water, brackish water, treated water, or groundwater that may lead to selective leaching. The program will include a one-time visual inspection and hardness measurement of selected components that may be susceptible to selective leaching to determine whether loss of material due to selective leaching is occurring, and whether the process fluids will affect the ability of the components to perform their intended functions for the period of extended operation. The Selective Leaching Program will be implemented prior to the period of extended operation.

The inspectors reviewed the program description, reviewed the implementation plan, and discussed the planned activities with the responsible staff.

For the Selective Leaching Program, the inspectors concluded Entergy performed adequate evaluations, including reviews of industry experience and plant history, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

System Walkdown Program

The System Walkdown Program is an existing program that will be enhanced for the purpose of aging management. The program entails inspections of external surfaces of components subject to aging management. The program is also credited with managing loss of material from internal surfaces for situations in which internal and external material and environment combinations are the same, such that external surface condition is representative of internal surface condition. System Walkdown Program guidance documents will be enhanced to include inspections of areas surrounding the subject systems to identify hazards to those systems.

The inspectors accompanied a system engineering manager during a walkdown of several systems. In addition, the inspectors reviewed station procedures, reviewed condition reports generated as a result of system walkdowns, and performed interviews to assess the effectiveness of system walkdowns and to verify that system engineers' awareness of new system walkdown guidance due to procedure enhancements being made for license renewal.

For the System Walkdown Program, the inspectors concluded Entergy had performed adequate evaluations, including reviews of industry experience and plant history, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Flow Accelerated Corrosion Program

The Flow-Accelerated Corrosion Program is an existing program credited with managing the corrosion aging effects in all carbon steel components in systems containing high-energy fluids carrying two-phase or single-phase fluid $\geq$2% of plant operating time. The aging effects are managed by performing non-destructive examinations (e.g. ultrasonic testing) to detect wall thinning and by predicting wear rates to support the proactive replacement of system piping. In addition, the program provides for the performance of follow-up inspections to confirm predictions and to determine the need for repairs or replacements as necessary.

The inspectors reviewed the piping ultrasonic testing wall thickness results from previous inspections, condition reports related to the Flow Accelerated Corrosion Program, and the 2005 Flow Accelerated Corrosion Program Focused Self-Assessment Report. In addition, the inspectors interviewed the Flow Accelerated Corrosion Program Manager and noted that recent piping replacements, initiated as a result of this program,

were implemented preventively due to identified flow-accelerated corrosion. In each case, the replacement piping material was more resistant to corrosion than the original piping material.

For the Flow-Accelerated Corrosion Program, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and plant historical reviews, to determine the appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Water Chemistry Control Programs

The Water Chemistry Control Programs consist of the Boiling Water Reactor (BWR), the Auxiliary Systems, and the Closed Cooling Water Programs. The aging effects are managed by monitoring and control of water chemistry to minimize contaminant concentration and mitigate loss of material. The One-Time Inspection Program describes inspections planned to verify the effectiveness of water chemistry control programs to ensure that significant degradation is not occurring, and components' intended functions are maintained during the period of extended of operation.

The Water Chemistry Control - BWR Program is an existing program with the objective of managing aging effects caused by corrosion and cracking mechanisms. The BWR Program optimizes the primary water chemistry to minimize the potential for loss of material and cracking. This is accomplished by limiting the levels of contaminant in the reactor coolant system (RCS) that could cause loss of material and cracking.

The Water Chemistry Control - Closed Cooling Water Program is an existing program which includes preventive measures that manage the loss of material, cracking, and fouling for components in closed cooling water systems, such as the reactor building closed cooling water (RBCCW), turbine building closed cooling water (TBCCW), and plant heating systems.

The Water Chemistry Control - Auxiliary Systems Program is an existing program which manages the loss of material for components exposed to treated water. The Auxiliary Systems Program activities include sampling and analysis of the stator cooling water system to minimize component exposure to aggressive environments.

The Water Chemistry Control Programs are administered in accordance with the Boiling Water Reactor Vessel and Internals Project guidelines BWRVIP-130 and Electrical Power Research Institute guideline EPRI report 1007820. The inspectors reviewed chemistry procedures and interviewed Pilgrim water chemistry specialists.

For the Water Chemistry Control Programs, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and plant historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Boiling Water Reactor Feedwater Nozzle Program

The Boiling Water Reactor (BWR) Feedwater Nozzle Program is an existing program that is comparable to the program described in NUREG-1801, Section XI.M5, BWR Feedwater Nozzle. This program continues enhanced inservice inspection of the feedwater nozzles in accordance with the requirements of Section XI of the ASME Code and the recommendations of the BWR Owners Group Licensing Topical Report General Electric NE-523-A71-0594 for monitoring the effects of cracking of the feedwater nozzles. To minimize thermal cycling and fatigue-induced cracking of the feedwater nozzles, Entergy performed system modifications, such as removal of nozzle stainless steel cladding, removal of feedwater blend radii flaws, and installed a triple-sleeve-double piston sparger. These preventive actions are not consistent with NUREG-1801, because a low-flow controller was not installed and the reactor water cleanup system was not rerouted. However, the NRC has accepted the conclusion that these modifications were unnecessary as documented in a safety evaluation report. The aging effects of cracking are managed by specified periodic ultrasonic testing (UT) inspections of the feedwater nozzles.

To verify the effectiveness of BWR Feedwater Nozzle Program, the inspectors interviewed plant personnel and reviewed various documents, such as Plant Design Change Request PDCR 79-41, which installed a triple-sleeve-double piston sparger, selected ISI station procedures, UT feedwater nozzle examination data sheets for feedwater nozzle inside-radius and inside-radius extension and feedwater nozzle-to-shell weld for feedwater nozzles N4A through N4D from refueling outage 14 (May 2003), various ISI program health reports, condition reports, and ISI audit in Quality Assurance audit report QA-08-2005-PNP-01. Entergy changed to risk-informed ISI methodology for Class 1 piping weld inspections in the second period of the third ten-year ISI interval and performs UT inspections at intervals in accordance with Table 6.1 of GE NE-523-A71-0594. The ISI program's third ten-year interval ended on June 30, 2005 and the ISI Program Plan is in its fourth ten-year interval. Continued successful UT examination results, the most recent in 2003, have resulted in no recordable indications in the feedwater nozzles. Entergy has committed to perform an updated feedwater nozzle fatigue analysis prior to the period of extended operation as documented in License Renewal Amendment 5, dated July 19, 2006.

For the BWR Feedwater Nozzle Program, the inspectors concluded Entergy has implemented sufficient modifications and performed periodic UT inspections of the feedwater nozzles which resulted in no recordable indications, and as a consequence, the absence of indications on the feedwater nozzles provides evidence that the potential cracking of the feedwater nozzles has been reasonably managed. In addition, Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Boiling Water Reactor Stress Corrosion Cracking Program

The Boiling Water Reactor (BWR) Stress Corrosion Cracking Program is an existing aging management program comparable to the program described in NUREG-1801, Section XI.M7, BWR Stress Corrosion Cracking that will be enhanced prior to the period of extended operation. Entergy will enhance the implementing procedure for ASME Section XI Code Programs to specify that the guidelines in Generic Letter 88-01 or approved Boiling Water Reactor Vessel Internal Inspection Program (BWRVIP-75) shall be considered in determining sample expansion if indications are found in welds addressed by GL 88-01. The BWR Stress Corrosion Program is credited with managing crack initiation and growth due to intergranular stress corrosion cracking (IGSCC) in stainless steel piping four inches and greater nominal diameter containing reactor coolant at a operating temperature greater than 200°F or cast austenitic stainless steel (CASS). The program also applies to pump casings, valve bodies and reactor vessel attachments and appurtenances, such as vent components. The aging effects of cracking are managed by preventive measures to mitigate IGSCC, which include monitoring and controlling water impurities by water chemistry control program activities, by providing replacement piping and components that are resistant to IGSCC, and by ultrasonic examination to detect IGSCC flaws and flaw evaluation to monitor IGSCC and its effects on the reactor coolant pressure boundary components made of stainless steel or CASS. UT examinations will be performed in accordance with PNPS-RPT-05-001, Fourth Ten-Year Inspection Interval In-service Inspection (ISI) Program Plan which incorporates the guidance in NUREG-0313, NRC Generic Letter 88-01, and BWRVIP-75.

Entergy replaced the reactor recirculation and connecting portions of core spray, reactor water cleanup, and residual heat removal system piping with intergranular stress corrosion cracking resistant piping material in the 1980s. However, some non-resistant welds remain in Class 1 piping and are inspected in accordance with PNPS-RPT-05-001, GL 88-01 and BWRVIP-75 requirements. To further mitigate the initiation and propagation of IGSCC, Entergy implemented hydrogen water chemistry in the 1990s and noble metals chemical addition is planned for 2007. The inspectors reviewed the in-service inspection summary report for refueling outage (RFO) 14, ISI program health reports, ISI audit report QA-08-2005-PNP-01, various non-destructive examination data sheets, and condition reports. Based on this review the inspectors determined that no recordable indications of intergranular stress corrosion cracking have been detected during UT examinations of nozzle safe end welds and austenitic stainless steel reactor coolant piping 4" and greater and operating temperatures greater than 200°F during RFO 14 (April, 2003) and RFO 15 (April, 2005). The inspectors determined that the BWR Stress Corrosion Program has been effective in monitoring and mitigating intergranular stress corrosion cracking in the reactor coolant boundary piping systems as a result of the preventive measures, inspections, and flaw evaluations to monitor for IGSCC.

For the Boiling Water Reactor Stress Corrosion Cracking Program, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and plant historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

Fire Protection Program

The Fire Protection Program is an existing program with some enhancements and is credited with managing the aging effects of penetration seals, fire barriers, and fire-rated doors that perform a fire barrier function. It also manages the aging effects of the diesel-driven fire pump and its fuel supply line, and the halon fire suppression system.

The inspectors reviewed the system health reports, applicable procedures, and a sample of completed surveillances to assure the current program is capable of managing aging effects. The inspector also performed a walkdown of portions of the fire protection system and had discussions with system engineers on the effectiveness of the current program regarding identifying age-related deficiencies.

For the Fire Protection Program, the inspectors concluded that Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure the aging effects are appropriately identified and addressed.

Fire Water System Program

The Fire Water System Program is an existing program with some enhancements credited with managing the loss of material due to corrosion, microbiological-induced corrosion (MIC), or biofouling of carbon steel and cast-iron components in fire protection systems exposed to water. The aging effects are managed by testing in accordance with applicable National Fire Protection Association (NFPA) codes and standards to assure functionality of systems.

The inspectors reviewed system health reports, procedures, and a sample of completed surveillance tests. The inspector also performed a walkdown of portions of the fire water system and had discussions with system engineers on the effectiveness of the current program regarding identifying age-related deficiencies.

For the Fire Water System Program, the inspector concluded that Entergy had performed adequate evaluations, as well as industry experience and historical reviews, to determine appropriate aging effects. Entergy provided adequate guidance to ensure the aging effects are appropriately identified and addressed.

b.3. System Review

Reactor Building Closed Cooling Water System Review

The Pilgrim license renewal application listed a number of plant systems within the scope of license renewal. From this list the inspectors selected the reactor building closed cooling water (RBCCW) system for a focused review to determine whether Pilgrim's aging management programs were adequate to effectively manage aging effects related to this system. The aging effects requiring management for the RBCCW system are cracking, cracking-fatigue, fouling, loss of material, and loss of material due to wear. The following existing aging management programs are credited for managing aging effects of the RBCCW system: heat exchanger monitoring; oil analysis; periodic surveillance and preventive maintenance; system walkdown; BWR water chemistry control; closed cooling water chemistry control; selective leaching program; and service water integrity.

The inspectors interviewed the RBCCW system engineer, performed walkdowns, and reviewed various documents to verify that the programs to manage aging effects, associated with the RBCCW system, have been comprehensive and effective. Specifically, the inspectors evaluated a sample of the aging management programs by reviewing RBCCW system health reports, maintenance history review, and various condition reports.

For the various aging management programs associated with the RBCCW system, the inspectors concluded that Entergy had performed adequate evaluations, including industry experience and historical reviews, of the RBCCW system to determine the appropriate aging effects and that aging management programs properly covered the various aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

High Pressure Coolant Injection System Review

The Pilgrim license renewal application listed a number of plant systems within the scope of license renewal. From this list the inspectors selected the high pressure coolant injection system (HPCI) for a focused review to determine whether the aging management programs were adequate to effectively manage aging effects related to this system. The aging effects requiring management for the HPCI system are cracking, cracking-fatigue, fouling, loss of material, and loss of material / wear. The following existing aging management programs are credited for managing HPCI aging effects: flow-accelerated corrosion; heat exchanger monitoring; oil analysis; periodic surveillance and preventive maintenance; system walkdown; and water chemistry control-BWR program.

The inspectors interviewed the HPCI system engineer, performed walkdowns, and reviewed various documents to verify the aging effects associated with the HPCI system requiring aging management have been comprehensive and effective. Specifically, the inspectors evaluated a sample of the aging management programs by reviewing HPCI system health reports, maintenance history review, in-service inspection results from the third ten-year inspection, audit report QA-08-2005-PNP-01, and various condition reports. Entergy is currently addressing leakage past HPCI steam line drain isolation valve AO-2301-29 caused by severe internal body and plug erosion, which is documented by condition report CR-PNP-2006-00773 and repair is scheduled for RFO 16, Spring 2007.

For the various aging management programs associated with the HPCI system, the inspectors concluded Entergy had performed adequate evaluations, as well as industry experience and historical reviews of the HPCI system to determine the appropriate aging effects and that aging management programs properly covered the various aging effects. Entergy provided adequate guidance to ensure aging effects are appropriately identified and addressed.

c. Overall Conclusions

Overall, the inspection results support a conclusion that the proposed activities will reasonably manage the effects of aging in the systems, structures, and components identified in the application and that the intended functions of these systems, structures, and components will be maintained in the period of extended operation. However, the inspection identified one program area (drywell shell monitoring), which has resulted in an open item in the safety evaluation report (SER) issued by the Office of Nuclear Reactor Regulation (NRR) on March 1, 2007. Also, the inspection team could not reach a determination on another program (instrumentation circuits testing) due to ongoing testing development. The inspection concluded that the documentation supporting the application was in an auditable and retrievable form.

40A6 Meetings, Including Exit

The inspectors presented the inspection results to Mr. Kevin Bronson, general manager, Pilgrim, and other members of his staff in an exit meeting that was open for public observation on January 30, 2007. Slides from the exit meeting are located in ADAMS file no. ML070440323. Subsequent to the exit meeting by telephone , the team leader provided the revised determination on Non-EQ Instrumentation Circuits Test Review Program to Mr. Bryan Ford on March 14, 2007. Entergy had no objections to the NRC observations. No proprietary information was provided to the inspectors during this inspection.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Bechen	Senior mechanical engineer
S. Bethay	Nuclear safety assessment director
S. Burke	Senior staff engineer
L. Chan	License renewal
A. Cox	License renewal specialist
D. Ellis	Senior engineer
B. Ford	Licensing manager
T. Ivy	License renewal specialist
D. Lach	License renewal project manager
M. Landry	Fire protection system engineer
L. Loomis	Water chemistry specialist
R. Mattos	Engineering consultant
F. Mogolesko	Manager, engineering projects
F. Mulcahy	System engineer
R. Pace	Design supervisor
R. Pardee	ISI Engineer
B. Rancourt	Engineer
D. Selig	EP&C supervisor
P. Smalley	Water chemistry specialist
R. Smith	Acting site VP
B. Sullivan	Systems engineering manager
T. White	Design engineering manager
S. Woods	P&C manager

LIST OF DOCUMENTS REVIEWED

LRA Drawings

Complete Set of License Renewal Drawings:

LRA-200, P&ID Legend, Sheets 1-2, Rev. 0
LRA-203, Main Steam, Sheets 1& 3, Rev. 0
LRA-209, Condensate & Demineralized Water System, Rev. 0
LRA-210, Air Injection & Off-Gas System, Rev. 0
LRA-212, Service Water System, Sheet 1, Rev. 0
LRA-215, Reactor Bldg. Closed Cooling Water System, Sheets 1-4, Rev. 0
LRA-218, Fire Protection System, Sheets 1-9, Rev. 0

LRA-219, Diesel Generator Air Start System, Rev. 0
LRA-220, Compressed Air System, Sheets 2 & 3, Rev. 0
LRA-223, Diesel Oil Storage & Transfer System, Rev. 0
LRA-227, Containment Atmospheric Control System, Sheets 1-2, Rev. 0
LRA-231, Fuel Pool Cooling System, Rev. 0
LRA-232, Radwaste Collection, System, Rev. 0
LRA-239, H2 & O2 Analyzer & Leak Detection System, Sheets1-2, Rev. 0
LRA-241, Residual Heat Removal System, Sheets1-2, Rev. 0
LRA-242, Core Spray System, Rev. 0
LRA-243, HPCI System, Rev. 0
LRA-244, HPCI Turbine & Control Oil Subsystem, Sheets 1-2, Rev. 0
LRA-245, RCIC System, Rev. 0
LRA-246, RCIC Turbine Oil Flow, Sheets 1-2, Rev. 0
LRA-247, Reactor Water Clean-up System, Rev. 0
LRA-249, Standby Liquid Control System, Rev. 0
LRA-250, Control Rod Drive Hydraulic System, Sheets 1-2, Rev. 0
LRA-251, Recirculation Pump A/B Instrumentation, Sheets 1-2, Rev. 0
LRA-253, Nuclear Boiler, Sheets 1-2, Rev. 0
LRA-259, Diesel Generator Turbo Air Assist System, Rev. 0
LRA-264, Station Blackout Diesel Generator System, Rev. 0
LRA-265, SEP Diesel Pump Fuel Oil Transfer System, Rev. 0
LRA-271, Emergency Diesel Generator Lube Oil System, Rev. 0
LRA-272, Emergency Diesel Generator Jacket Water Cooling System, Rev. 0
LRA-283, Secondary Containment Isolation Control Diagram, Rev. 0
LRA-286, Heating, Ventilation, and Air Condtioning, Rev. 0

LRA-288, Turbine Building Air Flow Diagram, Rev. 0
LRA-289, Reactor Building Air Flow Diagram, Rev. 0
LRA-292, Air Flow Diagrams - Other Buildings, Rev. 0
LRA-294, HVAC - Standby Gas Treatment System Diagram, Rev. 0
LRA-67-96, Diesel Generators Ventilation Systems, Rev. 0

<u>P&ID Drawings</u>

M-226, Miscellaneous Systems, Sheet 2, Revision 26
M-215, Reactor Building Cooling Water System, Sheet 1, Revision 50
M-215, Reactor Building Cooling Water System, Sheet 2, Revision 47
M-215, Reactor Building Cooling Water System, Sheet 3, Revision 39
M-215, Reactor Building Cooling Water System, Sheet 4, Revision 45
M-220, Compressed Air, Sheet 1, Revision 73
M-220, Compressed Air, Sheet 2, Revision 31
M-220, Essential Air, Sheet 3, Revision 69
M-220, Essential Air, Sheet 5, Revision 70
M-223, Diesel Oil Storage and Transfer System, Revision 29
M-241, Residual Heat Removal System, Sheet 1, Revision 81
M-241, Residual Heat Removal System, Sheet 2, Revision 46
M-242, Core Spray, Revision 50

M-243, HPCI, Revision 51
M-244, HPCI, Sheet 1, Revision 30
M-244, HPCI, Sheet 2, Revision 9
M-246, RCIC, Sheet 1, Revision 32
M-246, RCIC, Sheet 2, Revision 1
M-245, RCIC, Revision 35
M-265, Diesel Pump Fuel Oil Transfer System, Revision 3
M-271, Diesel Generator Lube Oil System, Revision 6
M-227, Containment Atmosphere Control System, Sheet 2, Revision 48
M-264, Station Blackout Diesel Generator Set, Revision E15
M-294, HVAC - Standby Gas Treatment System Control Diagram, Revision E26
P&ID Condensate & Demineralized Water Storage & Transfer Systems, M209, Revision E65, 12/03
P&ID Air Ejection And Off-Gas System, M210, Revision E65, 9/03
P&ID Fire Protection System, M218 Sheet 1, Revision E48, 9/03
P&ID Fire Protection System, M218 Sheet 2, Revision E45, 7/04
P&ID Fire Protection System, M218 Sheet 3, Revision E45, 1/04
P&ID Service Water System, M212 Sheet 1, Revision E87, 5/05
P&ID Diesel Oil Storage & Transfer System, M223, Revision E29, 9/03
Air Ejection & Off-Gas System Underground Vent Duct, M100-168-3, Revision
M218 Sht. 1, Fire Protection System, Rev. E48
M218 Sht. 2, Fire Protection System, Rev. E45
M218 Sht. 3, Fire Protection System, Rev. E45
M218 Sht. 4, Fire Protection Halon Sybsystems, Rev. E7
M218 Sht. 5, Fire Protection System Deluge System, Rev. E4
M218 Sht. 6, Fire Protection Deluge System, Rev. E1
M218 Sht. 7, Fire Protection System, Rev. E1
M218 Sht. 8, Fire Protection System, Rev. E6
M218 Sht. 9, Fire Protection System, Rev. E2
M218 Sht. 1, Fire Protection System, Rev. E48
M218 Sht. 2, Fire Protection System, Rev. E45
M218 Sht. 3, Fire Protection System, Rev. E45
M218 Sht. 4, Fire Protection Halon Sybsystems, Rev. E7
M218 Sht. 5, Fire Protection System Deluge System, Rev. E4
M218 Sht. 6, Fire Protection Deluge System, Rev. E1
M218 Sht. 7, Fire Protection System, Rev. E1
M218 Sht. 8, Fire Protection System, Rev. E6
M218 Sht. 9, Fire Protection System, Rev. E2
M212 Service Water System, Sheet 1, Revision E87,
M212 Service Water System, Sheet 1, Revision 88
M212 Hypochlorination System, Sheet 3, Revision E66
M212 Screen Wash System, Sheet 2, Revision 72

Isometric Drawings

M100B 1003, Nitrogen Purge Supply to Drywell and Torus, Rev. 1
M1004, sht 184, Nitrogen Makeup to Drywell and Torus, Rev. E3
M1004, sht 267, Nitrogen Purge Supply Piping, Rev. E1
M1004, sht 268, Nitrogen Purge Supply Piping, Rev. E1
M1004, sht 268, Nitrogen Purge Supply Piping, Rev. E1
M1004, sht 488, Standby Gas Treatment Damper Air Supply, Rev. 1
M1004, sht 513, Vacuum Breaker Accumulator Charging, Rev. A
6498-688, Standby Liquid Control Pump Suction, Rev. E0
SKM-99-12-JCR-06, sht 1, Backup Air Supply for A EDG Damper Control, Rev. A
SKM-99-12-JCR-07, sht 1, Backup Air Supply for B EDG Damper Control, Rev. A

Other Drawings

Dwg. H-11-1-18, Revision E0, 3/6/87; Pipe Support Stand-By Liquid Control System
Dwg. H-11-1-30, Revision E2, 5/00; Pipe Support Stand-By Liquid Control System
Dwg. ISI 2R-A, Revision E3; Nuclear Boiler System, Reactor Recirc Piping Loop “A”; ISI Weld Map
Dwg. ISI 2R-A, Revision E5; Nuclear Boiler System, Reactor Recirc Piping Loop “A”; ISI Weld Map
Dwg. C21, Sh. 2, Revision E1, 4/00; Yard Work Underground Piping Sections (SSW Piping)
Dwg. C21, Sh. 3, Revision E1, 4/00; Yard Work Underground Piping Sections (SSW Piping)
Drawing MIB-45-1, Rev. E1, Reactor Vessel Feedwater Sparger
E1 Sht. 1, Single Line Diagram Station, Rev. E20
E7, Single Line Meter and Relay Diagram 4160 Volt System, Rev. E25
E1 Sht. 1, Single Line Diagram Station, Rev. E20
E6 Sht. 1, Single Line Meter & Relay Diagram Generator & Auxiliary Transformers, Rev. E16
E6 Sht. 2, Single Line Meter & Relay Diagram Generator & Auxiliary Transformers, Rev. E0
E7 Sht. 0, Single Line Meter and Relay Diagram 4160 Volt System, Rev. E25
29011 Sht. 2, Structural Details Cable Terminal House & Manhole, Rev. E1
E1 Sht. 1, Single Line Diagram Station, Rev. E20
E6 Sht. 1, Single Line Meter & Relay Diagram Generator & Auxiliary Transformers, Rev. E16
E6 Sht. 2, Single Line Meter & Relay Diagram Generator & Auxiliary Transformers, Rev. E0
E7 Sht. 0, Single Line Meter and Relay Diagram 4160 Volt System, Rev. E25
E344, Sht. 1, Electrical Plot Plan Site, Rev. 17
E344, Sht. 6, Appendix “R” Ductline General Arrangement & Parts Plan, Rev. E1
C332A, Misc. Structures - Stack Plan, Elevation and Details, Rev. E9

License Renewal Program and Procedures

LRPD-01, System and Structure Scoping Report, Rev. 0
LRPD-02, LR Aging Management Program Evaluation Report, Rev. 3
LRPD-03, LR Time-Limited Aging Analysis and Exemption Evaluations, Rev. 0
LRPD-05, Operating Experience Review Report, Rev. 0
LRPD-06, LR Time-Limited Aging Analysis - Mechanical Fatigue, Rev. 0
LRPG-03, System and Structrure Scoping Methodology, Rev. 2
LRPG-05, Electrical System Scoping, Screening, and Aging Management Reviews, Rev. 2

Program Basis Documents

AMPER 3.1: Buried Piping and Tanks Program
B.1.18/AMPER 3.3: Metal-Enclosed Bus Inspection Program
B.1.20/AMPER 3.5: Non-EQ Instrumentation Circuits Test Review Program
B.1.21/AMPER 3.6 Non-EQ Insulated Cables and Connections Program
B.1.23/AMPER 3.7, One-Time Inspection Program
B.1.27/AMPER 3.8, Selective Leaching Program
B.1.1.14/AMPER 4.13, Flow Accelerated Corrosion Program
B.1.30/AMPER 4.22, System Walkdown Program
B.1.32.1/AMPER 4.23.1, Water Chemistry Control Auxiliary Systems Program
B.1.32.2/AMPER 4/23.2, Water Chemistry Control BWR Program
B.1.32.3/AMPER 4.23.3, Water Chemistry Control Closed Cooling Water Program
B.1.13.1/AMPER 4.13.1: Fire Protection Program
B.1.13.2/AMPER 4.13.2: Fire Water System Program
AMPER 4.14.2 Containment Inservice Inspection (CII) Program
AMPER 4.21 Service Water Integrity Program

Aging Management Review Technical Basis Documents

AMRE-01, Electrical Screening and Aging Management Reviews, Rev. 2
AMRM-02, Aging Management Review of Residual Heat Removal System, Revision 0
AMRM-03, Aging Management Review of Core Spray System, Rev. 0
AMRM-05, Aging Management Review of HPCI System, Rev. 0
AMRM-06, Aging Management Review of RCIC System, Rev. 0
AMRM-12, Aging Management Review of RBCCW System, Rev. 1
AMRM-13, Aging Management Review of Emergency Diesel Generator System, Rev. 0
AMRM-14, Aging Management Review of Station Blackout Diesel Generator System, Rev. 0
AMRM-15, Aging Management Review of Fuel Oil System, Rev. 0
AMRM-16, Aging Management Review of Instrument Air System, Rev. 0
AMRM-17, Aging Management Review of Fire Protection Water System, Rev. 0
AMRM-18, Aging Management Review of Halon System, Rev. 0
AMRM-30, Aging Management Review of Nonsafety-related Systems and Components Affecting Safety-related Systems, Rev. 1
AMRM-30, Aging Management Review of Nonsafety-related Systems and Components Affecting Safety-related Systems, Rev. 2

Plant Procedures

7.1.107, Revision 8, "Lubricating Oil Analysis using Oilview Model 5100 System"
3.M.4-123, Revision 1, "Diesel Fire Pump Engine Maintenance"
3.M.3-23.1, Revision 6, "Security Diesel System Maintenance"
3.M.4-17.4, Revision 26, "Lubrication Sampling and Change"
7.8.1, Revision 42, "Chemistry Sample and Analysis Program"
NOP02E1, Revision 2, "Generic Letter 89-13 Service Water Maintenance & Testing"
ENN-DC-120, Rev. 1, ASME Section XI Code Programs

EN-EP-S-013-P, Rev. 0, Control of Pilgrim Augmented Examinations
ENN-CS-S-008, Pipe Wall Thinning Structural Evaluation, Rev. 0
ENN-DC-143, System Health Reports, Rev. 2
ENN-DC-178, System Walkdowns, Rev. 1
ENN-DC-315, Flow Accelerated Corrosion Program, Rev. 0
EN-LI-102, Corrective Action Process, Rev. 4
EN-MS-S-011-Multi, Conduct of System Engineering, Rev. 0
ENN-NDE-9.05, Ultrasonic Thickness Examination, Rev. 0
Procedure No. 2.2.103, State Cooling System, Rev. 30
Procedure No. 7.8.1, Chemistry Sample and Analysis Program, Rev. 40
Procedure No. 7.8.7, Recording and Trending of Chemistry Data, Rev. 1
8.2.12, Revision 15, "Instrument Air Header Moisture Check"
7.1.69, Revision 14, "Air Quality Sampling"
3.M.4-123, Diesel Fire Pump (P-140) Engine Maintenance, Rev. 1
8.B.17.1, Inspection of Fire Door Assemblies, Rev. 17
8.B.22, Halon 1301 System – Cable Spreading Room, Rev. 2
Completed 1/17/04
8.B.29, Inspection of Fire Barriers, Rev. 7
8.B.3.1, Fire Hose Station Equipment Inspection – FSAR Related, Rev. 14
8.B.8, Fire Hydrant Operability, Rev. 16
Completed 6/3/04
8.B.12, Fire Protection System Flow Tests, Rev. 29
Completed 11/2/04
8.B.15, Annual Functional Tests of Fire Pumps – P-135, P-140, and P-181, Rev. 28
Completed 7/21/04
8.7.1.4.2, Primary Containment Integrated Leak Rate Test, Revision 8, completed on 8/4/91
8.7.1.4.2, Primary Containment Integrated Leak Rate Test, Revision 10, 5/17/93, completed on 5/20/93
8.7.1.4.2, Primary Containment Integrated Leak Rate Test, Revision 12, completed on 6/2/95
8.7.1.3, Local Leak Rate Test Program, Revision 21, 10/05
8.7.1.3.1, Performance-Based Leakage Testing Of The Primary Containment, Revision 2,10/05
8.5.3.14.1, Revision 2, 3/24/95; RBCCW Heat Exchanger Thermal Performance Test,
Completed in 1995
8.5.3.14.1, Revision 3, 2/11/97; RBCCW Heat Exchanger Thermal Performance Test,
Completed in 1997
8.5.3.14.1, Revision 3, 2/11/97; RBCCW Heat Exchanger Thermal Performance Test,
Completed in 1999
8.5.3.14.1, Revision 3, 2/11/97; RBCCW Heat Exchanger Thermal Performance Test,
Completed in 2001
8.5.3.14.1, Revision 4; RBCCW Heat Exchanger Thermal Performance Test, Completed in 2003
8.5.3.14.1, Revision 4; RBCCW Heat Exchanger Thermal Performance Test, Completed in 2005
3.M.4-85, Revision 16; Station Diving Procedure For Underwater Work And Inspections
EN-IS-124, Revision 2, 6/1/06; Video Inspection Of E SW Pump
8.5.3.14, Revision 26, 10/5/06; SSW Flow Rate Operability Test

2.2.32, Revision 74, 9/4/06; Weekly RBCCW/TBCCW Heat Exchanger Differential Pressure Evaluation
3.M.3-5.8, 4KV Bus Startup Transformer PT Fuse Drawer and Bus Duct Maintenance and Inspection, Rev. 4
3.M.1-14, General Maintenance Procedure for Heavy Load Handling Ops., Rev. 17
3.M.5-2, Main Stack Inspection Guideline, Rev. 8, completed 06/10/04
3.M.5-2, Main Stack Inspection Guideline, Rev. 9
3.M.2-5.3, LPRM Calibration, Rev. 19
3.M.7-5, Lifting Equipment, Rev. 13
8.M.1-1, IRM Functional/Calibration Check, Rev. 51
8.M.1-3, APRM Functional (Scram Clamp Normal), Rev. 54

Miscellanceous Documents

Pilgrim Plant Programs Used Oil Analysis Guidelines, dated 09-22-2006
CR-PNPLO-2006-00184, Snapshot Self-Assessment Results of 3rd Interval ISI Program for TS 4.6.6 requirement, 8/3/06
Pilgrim Nuclear Power Station Risk-Informed Inservice Inspection (RI-ISI) Periodic Update Review, Revision B, 8/3/04
Pilgrim Risk-Informed Inservice Inspection Application To Class I Piping Bases Document; Report PNPS-02Q-402, Revision 0, 9/10/01
PR 96.0396
PR 99.1296, 6/8/99
PR 99.9211, 6/9/99
PR 99.9247, 5/99
MR #19800428, 6/7/99
PNPS Visual Examination VT-3 Data Sheet, VT-6-05001
PNPS Visual Examination VT-3 Data Sheet, VT-6-05004
M-547, Revision 13, "Lubricants and Diesel Fuel Oil Specification"
M-591, Revision 7, "GL 89-13 SSW & RBCCW Heat Exchanger Maintenance & Testing"
ER 05107476, Revision 0, 4/30/05; Perform Engineering Evaluation of FW Hanger H6-1-SS3 and H6-1-SS5 to resolve CR-PNP-2005-01982
Main Stack Inspection Report, 5/8/06
Status of Pilgrim Isometric (a)(2) Review, 10/25/06

CRs (all CR-PNP-)

1989-02233	2002-10031	2005-01839
1996-00396	2002-10639	2005-01902
1996-09593	2002-11632	2005-01982
1997-01787	2002-09283	2005-04706
1997-09135	2002-09306	2006-00772
1999-01467	2003-02976	2006-00773
2000-09228	2003-03237	2006-01914
2001-02275	2003-04416	2006-03159
2001-04048	2004-00391	2006-03291
2001-04171	2004-01768	2006-03488*
2001-04779	2005-01107	2006-03689*
2001-09403		

*As a result of this inspection

Maintenance Requests/Work Orders

Preventive Maintenance Tasks:
P630025
P003564
P9400207
P9400208
02107756
04105897
04105898
04105899
05118867
06105115
06112864

System Health Reports

Heat Exchanger Component-System Health Report, 1st Quarter 2006
RBCCW System Health Report, 2nd Quarter 2006
ISI Program Health Report for 1st Quarter 2005 to 4th Quarter 2006
Fire Protection System Health Report, 3rd Quarter 2005 to 2nd Quarter 2006
Salt Service Water System Report - 4th Quarter 2004 to 2nd Quarter 2006

Miscellaneous

HPCI System Performance Monitoring Plan
LO-PNP-2005-00025-CA-0004, PNPS Flow Accelerated Corrosion Program Focused Self-Assessment Report, January 2005
RCIC Walkdown Checklist, Rev. 1
RFO 14 FAC Inspection Summary

RFO 15 FAC Inspection Data
Specification M300, Rev. 104
SBGT System Walkdown Checklist, 8/23/06
SDBD-48, Design Basis Document for Standby Gas Treatment System, Rev. 1
Standby Gas Treatment System Health Report, 2nd Quarter 2006
Summary of PNPS RFO 15 FAC Program Inspection Actvities, May 2005
PNPS-RPT-05-001, Rev. 0, Fourth Ten-Year Inspection Interval In-service Inspection (ISI) Program Plan
PDCR 79-41, Rev. 0, Feedwater Sparger Replacement and Nozzle Clad Removal
Quality Assurance Audit Report QA-08-2005-PNP-01, dated 5/25/2005
In-service Inspection Summary Report for Refuel Outage 14 at Pilgrim Nuclear Power Station, April 2003, dated 7/3/2003
PR01.9816.00
Walkdown List for AMRM-30

NRC Documents

NRC Regulatory Guide 1.147
NRC Information Notice 89-79: Degraded Coatings And Corrosion Of Steel Containment Vessels
NRC Information Notice 89-79, Supplement 1: Degraded Coatings And Corrosion Of Steel Containment Vessels
NRC Information Notice 97-10: Liner Plate Corrosion In Concrete Containments
NRC Generic Letter 98-04; Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-Of-Cooling Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment
NRC Information Notice 86-99, Supplement 1: Degradation Of Steel Containments
Generic Letter 89-13, "Safety Related Service Water and Heat Exchanger Problems"
Generic Letter 88-14, "Instrument Air System Problems"
NUREG-1522, Assessment of Inservice Conditions of Safety-Related Nuclear Plant Structures, 6/95
NUREG-6706, Capacity of Steel and Concrete Containment Vessels With Corrosion Damage, 2/01
NUREG-0661, Safety Evaluation Report Mark I Containment Long-Term Program, 7/80

Entergy Letters/Correspondence

License Renewal Application Amendment 1, 5/11/06
License Renewal Application Amendment 2, 6/7/06
License Renewal Application Amendment 3, 7/5/06
License Renewal Application Amendment 8, 9/13/06
License Renewal Application Amendment 10, 12/10/06
Entergy Ltr 2.04.027, 4/14/04; Request for Amendment to the Technical Specifications to provide a One-time Integrated Leak Rate Test (ILRT) Interval Extension

Industry Documents

EPRI Technical Report 1010639, Revision 4, Appendix C, "Lubricating Oil and Fuel Oil"
ASTM D-975-1981, "Standard Specification for Diesel Fuel Oils"
ANSI/ISA S7.0.0.1-1996, "Quality Standard for Instrument Air"
American Society Mechanical Engineers (ASME) Boiler Pressure Vessel Code Section XI, 1998 Edition with 2000 Addenda
BWRVIP-75-A: BWR Vessel and Internals Project Technical Basis for Revisions to Generic Letter 88-01 Inspection Schedules
NEI 95-10, Industry Guidelines for Implementing the Requirements of 10 CFR 54 - The License Renewal Rule, Rev. 6

LIST OF ACRONYMS

ADAMS	Agency-wide Documents Access and Management System
ASME	American Society Mechanical Engineers
PARS	Publicly Available Records
GALL	Generic Aging Lessons Learned Report
BWR	Boiling Water Reactor
FAC	Flow Accelerated Corrosion
PNPS	Pilgrim Nuclear Power Station
HPCI	High Pressure Coolant Injection
RCIC	Reactor Coolant Isolation Cooling
SBGT	Standyby Gas Treatment