December 28, 2005

Mr. Paul Harden
Site Vice President
Nuclear Management Company, LLC
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT
NRC LICENSE RENEWAL SCOPING, SCREENING, AND AGING MANAGEMENT INSPECTION REPORT 05000255/2005009(DRS)

Dear Mr. Harden:

On December 1, 2005, the NRC completed an inspection regarding your application for license renewal for the Palisades Nuclear Plant. The enclosed report documents the inspection results, which were discussed on December 1, 2005, with members of your staff in an exit meeting open for public observation at the Lake Michigan College in South Haven, Michigan.

The purpose of this inspection was an examination of activities that support the application for a renewed license for Palisades. The inspection addressed the processes of scoping and screening plant equipment to select equipment subject to an aging management review and development and implementation of aging management programs to support a period of extended operation. As part of the inspection, the NRC examined procedures and representative records, interviewed personnel, and visually examined accessible portions of various systems, structures or components, to verify license renewal boundaries, and to observe any effects of equipment aging. The visual examination of systems, structures, and components also included some areas not normally accessible, including inside electrical panels and manholes.

The inspection concluded that the scoping, screening, and aging management license renewal activities, were generally conducted as described in the License Renewal Application, as supplemented through your responses to requests for additional information from the NRC. The inspection also concluded that documentation supporting the application is generally in an auditable and retrievable form. Existing aging management programs were determined to be functioning adequately and, when all the programs are implemented as described in your License Renewal Application, there is reasonable assurance that the intended functions of vital plant systems, structures, and components will be maintained through the period of extended operation.

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

Sincerely,

/RA/

Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 50-255
License Nos. DPR-20

Enclosure: Inspection Report 05000255/2005009(DRS)
w/Attachment: Supplemental Information

See Attached Distribution

cc w/encl: J. Cowan, Executive Vice President
and Chief Nuclear Officer
R. Fenech, Senior Vice President, Nuclear
Fossil and Hydro Operations
D. Cooper, Senior Vice President - Group Operations
L. Lahti, Manager, Regulatory Affairs
J. Rogoff, Vice President, Counsel and Secretary
A. Udrys, Esquire, Consumers Energy Company
S. Wawro, Director of Nuclear Assets, Consumers Energy Company
Supervisor, Covert Township
Office of the Governor
L. Brandon, Michigan Department of Environmental Quality -
Waste and Hazardous Materials Division
Michigan Department of Attorney General

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-255
License Nos:	DPR-20
Report No:	05000255/2005009(DRS)
Applicant:	Nuclear Management Company, LLC
Facility:	Palisades Nuclear Plant
Location:	27780 Blue Star Memorial Highway Covert, MI 49043-9530
Dates:	October 24 through December 1, 2005
Inspectors:	P. Lougheed, Senior Engineering Inspector (Lead) A. Dunlop, Senior Engineering Inspector Z. Falevits, Senior Engineering Inspector C. Acosta Acevedo, Engineering Inspector J. Neurauter, Engineering Inspector
Approved by:	A. M. Stone, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000255/20005009(DRS); 10/24/2005 - 12/01/2005; Palisades Nuclear Plant; License Renewal Inspection

This inspection of the applicant's license renewal scoping, screening, and aging management processes was performed by five regional office inspectors. The team used NRC Manual Chapter 2516 and NRC Inspection Procedure 71002 as guidance for performing this inspection. No “findings” as defined in NRC Manual Chapter 0612 were identified.

The team concluded that, in general, the applicant performed its license renewal scoping, screening, and aging management review in accordance with the Palisades License Renewal Application and that no inspection impediments existed to granting the license extension.

REPORT DETAILS

A. Inspection Scope

This inspection was conducted by NRC Region III inspectors. The inspection was performed in accordance with NRC Manual Chapter 2516 and NRC Inspection Procedure 71002, "License Renewal Inspection," dated February 18, 2005.

This inspection looked at both the applicant's scoping and screening methodology and the aging management programs, as described in the license renewal application (LRA), submitted to the NRC on March 22, 2005. In regard to the scoping and screening methodology, the inspection concentrated on those non-safety systems whose failure could prevent safety-related systems, structures, or components (SSCs) from accomplishing a safety function, in accordance with 10 CFR 54.4(a)(2). To verify that these non-safety systems were correctly captured within the scope of license renewal, the inspectors reviewed documents, interviewed personnel, and walked down selected areas of the plant. The scoping and screening portion of the inspection also included verification of a sample of SSCs relied on to mitigate regulated events as specified in 10 CFR 54.4(a)(3).

In regard to the aging management, the inspection was intended to assess the adequate implementation of the aging management programs (AMPs) resulting from the applicant's license renewal (LR) program. This included verification that the AMPs would ensure the aging effects will be managed so that there is reasonable assurance that an SSC's intended function will be maintained throughout the period of extended operation. The inspection also consisted of walkdowns of selected in-scope SSCs to assess how plant equipment is currently being maintained and to visually observe examples of nonsafety-related equipment determined to be in scope due to their proximity to safety-related equipment and their potential for failure due to aging effects.

For those programs indicated by the applicant as being consistent with NUREG 1801, "Generic Aging Lessons Learned (GALL) Report," the inspectors confirmed that the applicant's program included the GALL attributes. For those programs which the applicant indicated were new or being enhanced, the inspectors confirmed that commitments existed and were sufficient to support future implementation. For those programs where the applicant indicated that they intended to take exception to the GALL, the inspectors reviewed the exceptions against the GALL recommendations and evaluated the acceptability of the applicant's proposal.

The attachments to this report list the applicant personnel contacted, the documents reviewed and the acronyms used.

B. Visual Observation of Plant Equipment

During this inspection, the inspectors performed walkdown inspections of portions of many of the plant SSCs, including nonsafety-related SSCs. The walkdowns were intended to determine the acceptability of the scoping boundaries, to observe the current condition of the SSCs, and to assess the likelihood that a proposed aging management program would successfully manage any aging effects. Specific comments on the

walkdown results are presented in the sections below. Portions of the following systems were walked down:

- Auxiliary Steam Heating System;
- Chemical Volume and Control System;
- Circulating Water System;
- Component Cooling Water System;
- Condensate and Feedwater Systems;
- Electrical Power Distribution System;
- Emergency Power Distribution System;
- Fire Protection System;
- Fuel Oil System;
- Heating, Ventilation and Air Conditioning System;
- Main Steam and Steam Generator Blowdown Systems;
- Radwaste System;
- Service Water System;
- Shutdown Cooling System; and
- Spent Fuel Pool Cooling System.

The following structures were walked down:

- Auxiliary Building;
- Block Walls in Turbine Building;
- Exterior Equipment Foundations;
- Intake Structure;
- Plant Control and Instrumentation Cable Tray Installations;
- South Penetration Room;
- Turbine Building; and
- 1C and 1D Switchgear Rooms (Buried Cable Manholes).

C. Review of Scoping and Screening Methodology

1. Auxiliary Steam Heating System

The purpose of the auxiliary steam heating subsystem is to provide heating steam to room area heat exchangers throughout the plant. The auxiliary steam heating subsystem is part of the heating, ventilation, and air conditioning (HVAC) system. Steam is provided by extraction steam from the low pressure turbine. When the main turbine is not operating, heating steam is provided by two auxiliary boilers. The auxiliary steam heating subsystem does not perform any safety-related function; however the auxiliary steam heating subsystem piping runs throughout the plant and in close proximity to some safety related equipment. Therefore, the applicant was evaluating the auxiliary steam heating subsystem under the requirements of 10 CFR 54.4(a)(2).

The inspectors reviewed the LR boundary drawings, the application, and the final safety analysis report (FSAR), and interviewed personnel responsible for the program. The inspectors also performed system walkdowns of accessible portions of the auxiliary steam heating subsystem. The inspectors concluded

that the applicant had performed scoping and screening for the auxiliary steam heating subsystem in accordance with the methodology described in the LR application and the rule.

2. Chemical Volume and Control System

The purpose of the chemical volume and control system (CVCS) design basis is to maintain the required volume of water in the primary coolant system (PCS) over the range of full to zero reactor power, maintain the chemistry and purity of the primary coolant, maintain the desired boric acid concentration in the PCS, and pressure test the PCS. The CVCS contains environmentally qualified (EQ) components and is credited for use in safe shutdown following station blackout (SBO) events and some plant fires to support Appendix R.

The applicant included the majority of the CVCS as being within the scope of the rule based on the sections that performed safety-related functions, were considered primary containment boundaries or regulated event-related components, and components in proximity to safety-related equipment as being within the scope of the rule. The remainder of the system was excluded because it was considered not to perform a safety-related function, not to potentially impact the function of another safety system, and not provide a function related to one of the regulated events.

The inspectors reviewed the LR boundary drawings, the application, the FSAR and the system health report and performed a system walkdown of accessible portions of the CVCS. The inspectors concluded that the proposed boundaries for the CVCS appeared to comply with the requirements of the LR rule.

3. Circulating Water System

The circulating water system is a closed cycle system using two mechanical draft cooling towers. Each loop supplies one-half of the main condenser with cooling water by gravity flow from the two 18-cell, induced draft cross-flow cooling towers. Two half-capacity vertical wet pit cooling tower pumps receive heated circulating water from the condenser pump suction makeup basin. The cooling water pumps return the circulating water to the cooling tower distribution headers through two 96-inch pipes.

The applicant included nonsafety-related components that could affect safety-related components, nonsafety-related components containing steam and/or fluids that are located in an area that also contains a safety-related component and the portions of the system containing components subject to an aging management program. The remainder of the system was excluded because it was considered to not perform a safety-related function, not to be required for a regulated event and to not potentially impact the function of another safety system.

The inspectors reviewed the LR boundary drawings, the application, and the FSAR, and interviewed personnel responsible for the program. The inspectors

also performed a system walkdown including the sections that were out of scope for license renewal. The inspectors concluded that the applicant had performed scoping and screening for the circulating water system in accordance with the methodology described in the LRA and the rule.

4. Closed-Cycle Cooling Water (Component Cooling Water) System

The purpose of the closed-cycle cooling water system (component cooling system) is to cool components carrying radioactive and potentially radioactive fluids. It provides a monitored intermediate barrier between these fluids and the service water system which transfers the heat to the outside environment. The system is a closed loop consisting of three motor-driven circulating pumps, two heat exchangers, a surge tank, associated valves, piping, instrumentation, and controls. The system is continuously monitored by a process monitor which detects radioactivity which may have leaked into the system from the fluids being cooled.

The applicant included the majority of the service water system as being within the scope of the rule. The remainder of the system was excluded because it was considered to not perform a safety-related function, not to be required for a regulated event and to not potentially impact the function of another safety system.

The inspectors reviewed the LR boundary drawings, the application, and the FSAR, and interviewed personnel responsible for the program. The inspectors also performed a system walkdown including the sections that were out of the scope of license renewal. The inspectors concluded that the applicant had performed scoping and screening for the closed-cycle cooling water system in accordance with the methodology described in the LRA and the rule.

e. Condensate and Feedwater System

The purpose of the condensate and condenser system (CDS) is to condense steam from the main turbine and main feed pump driver exhausts, as well as the flashed steam from the feedwater drains and to provide the design vacuum which establishes the steam-water cycle efficiency. The system primarily has only a normal operation function; however, there are some portions of the CDS which perform a safety related function. The CDS is credited for use in mitigating the regulated events of SBO and Appendix R fires.

The feedwater system (FWS) consists of the main feedwater and auxiliary feedwater systems. The purpose of the main feedwater system is to provide a reliable source of preheated water to the steam generators to increase overall thermal efficiency during normal operations. The purpose of the auxiliary feedwater system is to supply water to the secondary side of the steam generators for reactor decay heat removal when normal feedwater sources are unavailable during accident conditions, to provide a supply of feedwater to the steam generators during startup operations, and to remove primary sensible decay heat during initial stages of shutdown operations. There are some

portions of the FWS which perform a safety related function. The FWS also contains EQ components and is credited for use in mitigating the regulated events of anticipated transients without scram (ATWS), SBO, and Appendix R fires.

The applicant included in scope the sections of the condensate and feedwater systems that performed safety-related functions, regulated event-related components, and components in proximity to safety related equipment as being within the scope of the rule. The remainder of the system was excluded because it was considered not to perform a safety-related function, not to potentially impact the function of another safety system, and not provide a function related to one of the regulated events.

The inspectors reviewed the LR boundary drawings, the application, and the FSAR, and interviewed personnel responsible for the program. The inspectors also performed system walkdowns of accessible portions of the condensate and feedwater systems. The inspectors concluded that the applicant had performed scoping and screening for the condensate and feedwater systems in accordance with the methodology described in the LR application and the rule.

6. Electrical Power Distribution System

The electrical power distribution system consists of the transformers, switchgears, and other electrical components necessary to transform 345 kV power to three voltage levels used by the internal plant equipment. The power system includes 4160 Volt buses, 2400 Volt buses, 480 Volt load centers, 480 Volt motor control centers, 125 Volt DC and 120 Volt preferred AC. The emergency power system consists mainly of the emergency diesel generator system, the 125 Volt DC system, the 120 Volt preferred AC system, the emergency lighting system and their subsystems. However, it also includes the diesel fire pump engines and their auxiliaries. The 345 kV switchyard system has no safety-related function, but has SSCs in-scope of LR per 10 CFR 54.4(a)(3) requirements for SBO and Appendix R.

The inspectors reviewed the electrical LR boundary drawings, the application, and the applicable FSAR sections and interviewed personnel responsible for the electrical power distribution system and the LR program. The inspectors also performed system walkdowns with the system engineer and the lead electrical LR engineer of accessible and inaccessible portions of the electrical power distribution system.

The inspectors identified several attention to details items that were promptly addressed by the licensee. For example, relay 107X and Space Heater H26A were not in the Palisades Equipment Database and LR-SS-EPS had no Q-list determination for these components and no conclusion as to these components being in or out of LR scope. On October 31, 2005, the licensee initiated CAP 01002264 to address this issue. The inspectors concluded that the applicant had performed scoping and screening for the electrical power

distribution system in accordance with the methodology described in the LR application and the rule.

7. Fire Protection System

The fire protection system (FPS) at Palisades includes the diverse design and operational features intended to prevent and mitigate the effects of fires. Systems and structures at Palisades that support either fire protection design or safe shutdown following a fire are considered within the scope of license renewal. Some FPS SSCs are in scope because they perform a safety-related function, in accordance with 10 CFR 54.4 (a)(1). Other, nonsafety-related SSCs whose failure could affect safety-related SSCs, are in-scope in accordance with 10 CFR 54.4(a)(2). In addition, some SSCs are considered in-scope due to fire protection in accordance with 10 CFR 54.4(a)(3).

The inspectors examined the scoping boundary diagrams which show the evaluation boundaries for the portions of the FPS that the applicant concluded are within the scope of license renewal. The inspectors also reviewed system function listing of components contained in the FPS and conducted field walkdowns and interviews with FPS and LR engineers and identified no concerns with the fire protection equipment highlighted as being in LR scope on the boundary drawings.

8. Fuel Oil System

The purpose of the fuel oil system is to provide storage of an adequate volume of fuel oil for the emergency diesel generators to support accident conditions and the diesel driven fire pumps to support an Appendix R safe shutdown. The system provides sufficient fuel capacity to allow one emergency diesel generator to operate continuously for seven days. Fuel oil system piping runs from the fuel oil storage tank to the emergency diesel generators and the diesel fire pumps. In addition, the piping runs from the nonsafety-related feedwater purity fuel oil tank to the manual valve MV-FO119 are also within the in-scope system boundaries. However, some portions of the system were excluded because they did not perform a safety-related function, were not required for a regulated event and did not potentially impact the safety function of another system.

The inspectors reviewed the LR boundary drawings, the application, the system health report, and the FSAR, and interviewed personnel responsible for the program. The inspectors also performed a walkdown of the fuel oil system emergency diesel generator day tanks, the enclosures for the fuel oil storage tanks, fuel oil transfer pumps, and piping in the turbine building and intake structure, including the structural supports credited for connected piping not within scope of license renewal. The inspectors concluded that the applicant had performed scoping and screening for the fuel oil system in accordance with the methodology described in the LR application and the rule.

9. Heating, Ventilation and Air Conditioning System

The purpose of the HVAC system is to provide air flow to various spaces inside the plant. Supply and exhaust fan combinations provide ventilation air for breathing, heated air to prevent equipment freezing, and for personnel comfort in cold weather and cooled air to selected locations to remove heat from lights, equipment, etc. The HVAC system is a collection of independent ventilation subsystems which heat or cool various plant areas such as the control room and the diesel generator rooms. The HVAC system contains components which are in-scope for LR due to performing a safety-related function, components which are in-scope because they might affect safety-related components, and components which are in-scope because they are credited for the regulated events of fire protection, EQ, or SBO. The HVAC system also contains sub-systems and components which the applicant determined did not need to be within the scope of LR. Most noticeably, these sub-systems included the engineered safeguards room HVAC, the auxiliary feedwater system HVAC, and the penetration cooling sub-system.

The inspectors reviewed the LR boundary drawings, the application, the FSAR and calculations for the portions of the HVAC system which were excluded from the LR scope. The inspectors also performed system walkdowns of accessible portions of the HVAC system, including the out-of-scope portions, and interviewed personnel responsible for the system. The inspectors concluded that the proposed boundaries for the HVAC system adequately complied with the requirements of the LR rule. The inspectors specifically determined that the applicant had adequate rationale for excluding the engineered safeguards room HVAC, the auxiliary feedwater system HVAC, and the penetration cooling subsystem from the LR process.

10. Main Steam and Steam Generator Blowdown Systems

In the main steam system, steam generated in the steam generators passes through two headers and main steam isolation valves to the turbine stop valves. Each main steam header is provided with safety valves and atmospheric dump valves upstream of the main steam isolation valves. The main steam line also supplies steam for the steam jet air ejectors, the heating steam for the reheaters, the secondary steam supply to the steam generator feed pump turbine drivers, and steam supply to the turbine-driven auxiliary feed pump turbine driver.

The steam generator blowdown system is a subsystem of the main steam system. The purpose of the steam generator blowdown subsystem is to process steam generator blowdown water for effective steam generator chemistry control, to clean up the condenser hotwell prior to startup, and to recirculate steam generator secondary side water during cold shutdown conditions for treatment purposes.

There are some portions of the main steam system which perform a safety related function. The main steam system also contains EQ components and

is credited for use in mitigating the regulated events of ATWS, SBO, and Appendix R fires.

The applicant included in scope the sections of the main steam system that performed safety-related functions, regulated event-related components, and components in proximity to safety related equipment as being within the scope of the rule. The remainder of the system was excluded because it was considered not to perform a safety-related function, not to potentially impact the function of another safety system, and not provide a function related to one of the regulated events.

The inspectors reviewed the LR boundary drawings, the application, and the FSAR, and interviewed personnel responsible for the program. The inspectors also performed system walkdowns of accessible portions of the main steam system. The inspectors concluded that the applicant had performed scoping and screening for the main steam system in accordance with the methodology described in the LR application and the rule.

11. Service Water System

The purpose of the service water system is to supply Lake Michigan water as the cooling medium (ultimate heat sink) for removal of waste heat from the nuclear and steam plant auxiliary systems during normal shutdown, or emergency conditions. Three half-capacity electric motor-driven pumps draw screened and intermittently chlorinated Lake Michigan water from the intake structure. Each service water pump discharges through a simplex strainer into a common header. The common header has a full-capacity takeoff at each end, which supplies critical plant systems. A third takeoff at one end of the common header supplies the noncritical auxiliary systems.

The applicant included the majority of the service water system as being within the scope of the rule. The remainder of the system was excluded because it was considered to not perform a safety-related function, not to be required for a regulated event and to not potentially impact the function of another safety system.

The inspectors reviewed the LR boundary drawings, the application, and the FSAR, and interviewed personnel responsible for the program. The inspectors also performed a system walkdown including the service water pump rooms, noncritical service water system, chemical addition tanks and the intake structure. The inspectors concluded that the applicant had performed scoping and screening for the service water system in accordance with the methodology described in the LR application and the rule.

12. Radwaste System

The radwaste system contains the liquid and solid radwaste subsystems. The applicant determined that portions of both subsystems were within the scope of LR either because they performed a safety-related function, contained SSCs

which were in-scope under 10 CFR 50.54(a)(2), or contained EQ SSCs which were in-scope under 10 CFR 50.54(a)(3). The radwaste system also contained components which the applicant determined did not need to be within the scope of LR. The inspectors reviewed the LR boundary drawings, the application, the FSAR and other documents for the portions of the radwaste system which were excluded from the LR scope. The inspectors also performed system walkdowns of accessible portions of the radwaste system and interviewed personnel responsible for the system to determine the rationale for excluding SSCs from the LRA. The inspectors concluded that the proposed boundaries for the radwaste system complied with the requirements of the LR rule.

13. Shutdown Cooling System

The shutdown cooling (SDC) subsystem is part of the engineered safeguards system, which is a two train independent and diverse system designed to identify inadequate core cooling, and then start the necessary pumps and open the needed valves to establish adequate core cooling conditions. The engineered safeguards system is presented as a single system in the LR application as the mechanical subsystems use most of the same components for various subsystem functions. The SDC subsystem is designed to transfer heat from the PCS to the component cooling system after reactor shutdown and after an accident, and to maintain a suitable temperature for refueling and maintenance during plant shutdowns. The engineered safeguards system contains EQ components and is credited to support an Appendix R safe shutdown. The SDC subsystem was considered in-scope for LR.

The inspectors reviewed the LR boundary drawings, the application, the system health report, and the FSAR, and interviewed personnel responsible for the program. The inspectors also performed a walkdown of the east engineered safeguards system room with the system engineer. The inspectors concluded that the applicant had performed scoping and screening for the SDC subsystem in accordance with the methodology described in the LR application and the rule.

14. Spent Fuel Pool Cooling System

The spent fuel pool cooling (SFP) system removes decay heat from spent fuel stored in the spent fuel pool. The SFP system is required to maintain fuel pool water temperature less than 150°F with a minimum of one spent fuel pool cooling pump operating.

The applicant evaluated the safety-related portions of the SFP system under the requirements of 10 CFR 54.4(a)(1), and the nonsafety-related portions of the spent fuel pool cooling system under the requirements of 10 CFR 54.4(a)(2). The applicant included the majority of the spent fuel pool cooling system as being within the scope of the rule. The remainder of the system was excluded because it was considered to not perform a safety-related function, not to be required for a regulated event, and to not potentially impact the function of another safety system.

The inspectors reviewed the LR boundary drawings, the application, and the FSAR, and interviewed personnel responsible for the program. The inspectors concluded that the applicant had performed scoping and screening for the spent fuel pool cooling system in accordance with the methodology described in the LR application and the rule.

D. Review of Aging Management Programs

1. Bolting Integrity Program (B2.1.3)

The Bolting Integrity Program is an existing program that will be consistent with NUREG 1801, Section XI.M.18, "Bolting Integrity" once enhancements are completed. The program credits activities performed under three other aging management programs to manage the aging effects associated with bolting. These three aging management programs are: (1) the ASME Section XI IWB, IWC, IWD, IWF Inservice Inspection Program; (2) the Structural Monitoring Program; and (3) the System Monitoring Program. The program includes repair and replacement controls for ASME Section XI related bolting and incorporates generic guidance regarding material selection, thread lubrication, and assembly of bolted joints. The applicant committed to incorporate the guidelines delineated in NUREG-1339 for a bolting integrity program, EPRI NP-5769 (with the exceptions noted in NUREG-1339) for safety related bolting, and EPRI TR-104213 for non-safety related bolting. The applicant further planned to evaluate all high strength bolting for susceptibility to cracking and to implement appropriate further inspections as necessary.

The inspectors reviewed license renewal program basis documentation, aging management review documents, existing plant procedures, and recently completed work orders which impacted in-scope bolting. The inspectors reviewed the applicant's plant specific operating experience through a corrective action program search for degraded or missing hardware and verified that the licensee performed adequate historic reviews of plant specific experience to determine aging effects. The inspectors also observed bolting conditions during a routine system walkdown and assessed the system monitoring program's effectiveness at detecting bolting integrity issues.

The inspectors concluded that the applicant adequately managed current plant aging effects relating to bolting. With the enhancements to be incorporated prior to the period of extended operation to the three aging management programs which will actually manage bolting issues, there is reasonable assurance that bolting aging effects will be managed. Therefore, plant bolting will continue to perform its intended function consistent with the current licensing basis for the period of extended operation.

2. Boric Acid Corrosion Program (B2.1.4)

The boric acid corrosion program is an existing program which, with enhancements, will be comparable to NUREG-1801, Section XI.M10, "Boric Acid Corrosion." The program was designed to fulfil the guidance of NRC Generic

Letter 88-05, “Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants.” The boric acid corrosion program manages aging effects for structures and components as a result of borated water leakage. The program requires periodic visual inspection of systems that contain borated water for evidence of leakage or accumulations of dried boric acid. It includes provisions for: (1) identification of components exhibiting boric acid accumulations or leakage; (2) evaluation of the acceptability for continued service of components exhibiting boric acid accumulations or leakage; (3) trending and tracking of previously identified leaks or boric acid accumulation; and (4) corrective actions. The boric acid corrosion program credits the systems monitoring program for the visual inspection of SSCs, the inservice inspection pressure test program to establish acceptance criteria and requires corrective action or evaluation if leakage or boric acid residue is noted, the ASME inservice inspection program for detection of boric acid wastage on ASME class component supports, the maintenance rule structural monitoring program to inspect structural steel and non-ASME component supports, and a maintenance procedure to inspect electrical connectors on a periodic frequency for boric acid residue and degradation.

The inspectors reviewed program documentation, aging management review documents, program health report, corrective action documents, and existing procedures and confirmed that the applicant had commitments in place to enhance the program prior to the start of the period of extended operation. The inspectors also interviewed the program owner and conducted walkdowns to assess the condition of the accessible portions of the chemical and volume control system and the east essential safeguards room. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects as specified in the LRA are consistent with current industry practice.

The inspectors concluded that the boric acid corrosion program manages aging effects for borated systems and credits other programs for inspection of other SSCs that may be affected by leakage of borated water. With the enhancements to be incorporated prior to the period of extended operation, continued implementation of the boric acid corrosion program will provide reasonable assurance that the aging effects will be managed so that susceptible components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

3. Buried Services Corrosion Monitoring Program (B2.1.5)

The buried piping corrosion monitoring program is a new program that will be comparable to NUREG-1801, Section XI.M34, “Buried Piping and Tanks Inspection.” The program manages the aging effects on the external surfaces of carbon steel, low-alloy steel, and stainless steel components that are buried in sand or soil. Buried cast iron components are managed by the fire protection program.

The inspectors reviewed program documentation, aging management review documents, a Palisades assessment of underground systems, structures and components, and corrective action documents. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects and including several buried piping failures in the fire protection at Palisades. The inspectors reviewed a root cause evaluation (RCE) that involved the failure of buried alternate steam supply pipe to the turbine-driven auxiliary feedwater pump due to external corrosion of the pipe. The RCE indicated that very little if any protective coating remained when the steam supply line was excavated. The applicant suspected that the coating was not designed for the high temperatures associated with the steam line. Final resolution was to remove the alternate steam supply line from service such that there was no longer any buried steam piping that could affect the pipe coating and lead to degradation from high temperatures.

With respect to Element 4, “Detection of Aging Effects,” the inspectors questioned the applicant’s program consistency with the GALL with respect to verifying that at least one opportunistic or focused inspection was performed within the past ten years prior to extended operation and upon entering the period of extended operation, the applicant would perform a focused inspection within ten years, unless an opportunistic inspection occurred within this ten-year period. The applicant stated that although this was not in the program basis document or application, a letter to the NRC in response to a request for additional information submitted a preliminary commitment to be consistent with the GALL.

During a review of the licensee’s procedure EM-09-13, “Inservice Inspection Pressure Testing Program,” the inspectors identified that the procedure did not identify the buried intake service water system piping as requiring pressure testing per the American Society of Mechanical Engineers (ASME) Code, section IWA-5244. The licensee indicated that this issue was previously identified on CAP046853 and evaluated per ACE003528. Although the CAP indicated that this piping should have been included in the procedure, it was not added as part of the corrective actions as required. The licensee issued AR01003725 during the inspection documenting the failure to include the service water piping in the procedure. ACE003528 states that for the service water supply piping, the Section XI Code requirement, IWA-5244, is met by verifying flow is not impaired. However, this does not appear to meet the Code requirement for isolable piping, which per the Code would require a VT-2 visual inspection. Since this is an issue affecting current plant licensing basis, it was referred to the resident inspection staff for further followup.

The inspectors concluded that the buried services corrosion monitoring program, when implemented as described in the application and with the above stated changes, will adequately manage aging effects. Implementation of the buried services corrosion monitoring program will provide reasonable assurance that the aging effects will be managed so that the buried service water, fuel oil, condensate, feedwater, demineralized water, and hydrogen system components

will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

4. Closed Cycle Cooling Water Program (B2.1.6)

The closed-cycle cooling water (CCCW) system program is an existing program which will be comparable to NUREG-1801, Section XI.M21, "Closed-Cycle Cooling Water System." However, the applicant also identified some exceptions to the GALL program. The CCCW system surveillance program manages aging effects in closed cycle cooling water systems that are not subject to significant sources of contamination, in which water chemistry is controlled and heat is not directly rejected to the ultimate heat sink. The program includes: (1) maintenance of system corrosion inhibitor concentrations to minimize degradation; and (2) periodic or one-time testing and inspections to assess structure, systems and components aging.

The inspectors reviewed license renewal program basis documentation, aging management review documents, historical chemistry parameter trends, and existing procedures and surveillance. The inspectors also interviewed the CCCW program owner, interviewed the component cooling water system engineer, and conducted walkdowns to assess the condition of CCCW systems within the plant. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects and the exceptions to NUREG 1801 specified in the LRA are consistent with current industry practice.

The inspectors concluded that the CCCW system program effectively manages aging effects. Continued implementation of the CCCW system program will provide reasonable assurance that the aging effects will be managed so that the CCCW system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

5. Diesel Fuel Monitoring and Storage Program (B2.1.9)

The diesel fuel monitoring and storage program is an existing program that, with enhancements, will be consistent, with exceptions, with NUREG-1801, Section XI.M30, "Fuel Oil Chemistry." The diesel fuel monitoring and storage program assures the continued availability and quality of fuel oil to be used in diesel generators and diesel fire pumps. The program includes: (a) monitoring and trending of fuel oil chemistry to maintain fuel oil quality and mitigate corrosion; (b) periodic draining, cleaning, and internal inspection of fuel oil storage tanks; and (c) verification of program effectiveness by a one-time measurement of fuel oil storage tank bottom thickness to confirm the absence of an aging effect. Fuel oil quality is maintained by monitoring and controlling fuel oil contamination in accordance with the guidelines of the American Society for Testing Materials (ASTM) Standards D 1796, D 2276, D 2709, and D 4057.

The inspectors reviewed license renewal program basis documentation, aging management review documents, program health report, and existing procedures.

The inspectors also interviewed the program owner and conducted walkdowns of the emergency diesel generators, day tanks, and enclosures for the fuel oil storage tanks. The inspectors confirmed that the applicant had commitments in place to enhance the program prior to the start of the period of extended operation. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects and the exceptions to NUREG 1801 specified in the LRA, which does not require the addition of biocides, stabilizers, and corrosion inhibitors is acceptable based on plant history that has not identified concerns with the fuel oil and the continuing requirement to sample the fuel oil and evaluate abnormal test results.

The inspectors concluded that the diesel fuel monitoring and storage program effectively manages aging effects. Providing the enhancements are incorporated as specified by the applicant's application, continued implementation of the diesel fuel monitoring and storage program will provide reasonable assurance that the aging effects will be managed so that the fuel oil system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

6. Fire Protection and Fire Water System Programs (B2.1.10)

The fire protection program is an existing program which, with the proposed enhancements, will be comparable to Section XI.M26, "Fire Protection," of the GALL report. The fire water system program is an existing program which, with the proposed enhancements, will be comparable to the program described in Section XI.M27, "Fire Water System," of the GALL report, and as clarified by Interim Staff Guidance (ISG)-04. However, the applicant also identified some exceptions to the GALL program.

The fire protection program includes fire barrier visual inspections, motor and diesel-driven fire pump tests, and periodic maintenance, testing, and inspections of water-based fire protection systems. Periodic testing of the fire pumps is performed to ensures that an adequate flow of fire water is supplied and that there is no degradation of the diesel fuel supply lines. Fire barrier inspections consists of periodic visual inspection of fire barrier penetration seals, fire dampers, fire barrier walls, ceilings and floors; and periodic visual inspection and functional tests of fire-rated doors. The fire protection program also includes periodic inspection and testing of the Halon/Carbon Dioxide fire suppression systems. The fire water system program consists of water-based fire protection systems that include components that are periodically inspected and tested in accordance with the applicable National Fire Protection Association codes and standards and plant procedures. These include sprinkler system inspections, pipe wall thickness testing, hydrant inspections, flushes, and flow tests, fire main flushes.

The inspectors reviewed fire protection program documentation, condition reports, aging management review documents, existing procedures, required enhancements, commitments and implementing documents and confirmed that the licensee had a commitment in place to enhance the program prior to the start

of the period of extended operation. The inspectors also conducted plant visual inspections to assess the condition of fire protection and water system equipment, interviewed the fire protection program system and design engineers to confirm the continuation of the existing program along with the implementation schedule of the required program enhancements, specified in section 7.0 of LR-AMPBD-13, "FIREPROT," Rev. 3. In addition, the inspectors verified that the licensee performed adequate historic reviews of plant specific and industry experience to determine aging effects and the exceptions to NUREG 1801 specified in the LRA are consistent with current industry practice.

During the field visual inspection of fire protection and water system components and equipment, the inspectors identified extensive corrosion inside fire protection control panel EC-137 used for control of diesel driven fire pump P-4. On October 27, 2005, the licensee initiated CAP 01002251 to address this issue. Initial investigation determined that the panel is not required to be seismically qualified, but has to meet Appendix R requirements.

The inspectors concluded that the fire protection and fire water system programs in general, effectively manage aging effects. With the enhancements to be incorporated prior to the period of extended operation, continued implementation of the fire protection and fire water system programs will provide reasonable assurance that the aging effects will be managed so that the fire protection and fire water system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

7. Flow Accelerated Corrosion Program (B2.1.11)

The flow-accelerated corrosion (FAC) aging management program is an existing program credited in the LRA as being consistent with NUREG-1801, Section XI.M17, "Flow-Accelerated Corrosion." The ongoing program is used to predict, detect, and monitor FAC in plant piping and other components, such as valve bodies, elbows, and expanders. The program was credited with: (1) conducting an analysis to determine critical locations; (2) performing baseline inspections to determine the extent of thinning at these locations; and (3) performing follow-up inspections to confirm the predictions, or repairing or replacing components as necessary.

The inspectors reviewed the applicable license renewal program basis documentation, interviewed the FAC program owner, reviewed applicable procedures, reviewed the determination of systems susceptible to FAC, reviewed engineering analyses for a sample of systems susceptible to FAC, reviewed FAC self-assessment reports, and reviewed a condition report related to FAC.

The inspectors concluded that the flow-accelerated corrosion program was in place, had been implemented, was an ongoing program subject to NRC review, and generally included the elements identified in the LRA. As it is a current program subject to periodic NRC review and inspection, there is reasonable assurance that adequate inspections required by the program will be performed through the period of extended operation.

8. Non-EQ Electrical Commodities Condition Monitoring Program (B2.1.12)

a. Electrical Cables and Connectors Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program

The electrical cables and connectors not subject to 10 CFR 50.49 Environmental Qualification requirements is a new program that manages aging in selected non-EQ commodity groups within the scope of 10 CFR Part 54. The applicant will implement this program prior to the period of extended operation. This program will be consistent with the program described in NUREG-1801, Sections XI.E1, "Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements," and guidance provided in ISG-2 and draft ISGs -5, -15, -17, and -18. The electrical cables and connectors not subject to 10 CFR 50.49 Environmental Qualification requirements program will apply to accessible insulated cables and connections installed in structures within the scope of license renewal and prone to adverse localized environments. The program will provide reasonable assurance that the intended functions of insulated cables and connections exposed to adverse localized equipment environments caused by heat, radiation, or moisture will be maintained consistent with the current licensing basis through the period of extended operation.

The inspectors reviewed program documentation, condition reports, aging management review documents, proposed and existing procedures, and confirmed that the licensee had a commitment in place to implement the program prior to the start of the period of extended operation. The inspectors also interviewed the lead electrical LR engineer concerning cables and connectors not subject to 10 CFR 50.49 Environmental Qualification requirements program to determine how and when aging management program changes that are required to satisfy LR commitments and applicable ISGs will be developed and implemented. In addition, the inspectors verified that the licensee performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that the electrical cables and connectors not subject to 10 CFR 50.49 Environmental Qualification requirements program, when implemented as described, will effectively manage aging effects, since it will incorporate proven monitoring and testing techniques, acceptance criteria, corrective actions, and administrative controls. Implementation of this program will provide reasonable assurance that the effects of aging will be managed such that components within the scope of the program will perform their intended functions consistent with the current licensing basis for the period of extended operation.

b. Electrical Cables Not Subject to 10 CFR 50.49 Environmentally Qualified Requirements Used in Instrumentation Circuits Program

The electrical cables not subject to 10 CFR 50.49 Environmentally Qualified requirements used in instrumentation circuits program is a new program that the applicant will implement prior to the period of extended operation. This program will be consistent with the program described in NUREG-1801, Section XI.E2, "Electrical Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits." This program, when implemented, will provide reasonable assurance that the intended functions of specified non-EQ electrical cables will be maintained consistent with the current licensing basis through the period of extended operation. The electrical cables included in the scope of this program are cables which are not required to be environmentally qualified under 10 CFR 50.49; are used in instrumentation circuits with sensitive, high voltage, low-level signals; and are exposed to adverse localized environments caused by heat, radiation, or moisture.

The inspectors reviewed program documentation, condition reports, aging management review documents, existing and proposed procedures, and confirmed that the licensee had a commitment in place to enhance the program prior to the start of the period of extended operation. The inspectors also interviewed the LR electrical engineer concerning cables not subject to 10 CFR 50.49 Environmentally Qualified requirements used in instrumentation circuits program to determine required enhancements and their implementation schedule to periodically test sensitive instrumentation circuits to ensure that the circuit will perform its intended function through the period of extended operation as described in Action Tracking No's. 04-029 and 04-064 and which considered the guidance provided in ISG-15. The inspectors also verified that the licensee performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that the electrical cables not subject to 10 CFR 50.49 Environmentally Qualified requirements used in instrumentation circuits program, when implemented as described, will effectively manage aging effects, since it will incorporate proven monitoring techniques, acceptance criteria, corrective actions, and administrative controls. Implementation of the electrical cables not subject to 10 CFR 50.49 Environmentally Qualified requirements used in instrumentation circuits program will provide reasonable assurance that the effects of aging will be managed such that components within the scope of the program will perform their intended functions consistent with the current licensing basis for the period of extended operation.

c. Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program

The inaccessible medium-voltage cables not subject to 10 CFR 50.49 Environmental Qualification requirements program is a new program that the applicant will implement prior to the period of extended operation. The program, when implemented will be comparable to that described in NUREG-1801, Section XI.E3, "Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements." This program applies to inaccessible (e.g., in conduit or direct-buried) medium-voltage cables within the scope of license renewal that are exposed to significant moisture simultaneously with applied voltage. This program includes a commitment to periodically inspect and test these cables to provide an indication of the condition of the conductor insulation. The specific type of tests performed will be determined and implemented prior to the expiration of the current license. The program also includes guidance provided in draft ISG - 18 for periodic inspections of underground raceway manholes for accumulation of water over the medium-voltage cables. This licensee has committed to conduct these inspections to minimize the prolonged moisture conditions that promotes the growth of water trees.

The inspectors reviewed program documentation, condition reports, aging management review documents and existing procedures, and confirmed that the licensee had a commitment in place to enhance the program prior to the start of the period of extended operation. The inspectors also interviewed the license renewal non-EQ inaccessible medium-voltage cable program lead electrical engineer to determine implementation of particular test procedures to be developed under the program and to determine, in general, how the program would be enhanced to include inspections and additional "state of the art" cable tests, as stated in the required program enhancements Action Tracking No. 04-030, 04-047 and 04-065. In addition, the inspectors verified that the licensee performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors also conducted a field visual inspection of medium and low level cables routed in underground ducts via 3 manholes located in 2.4 kV safety related switchgear room 1C. During this inspection, the inspectors noted that some of the cables routed underground via 2 of the 3 manholes inspected, were submerged in approximately 12" of water. On October 27, 2005, the licensee initiated CAP 01002162, "Standing Water in Power Cable Manholes in Bus 1C Switchgear Room." This issue was referred to the Resident Inspectors for further followup.

The inspectors concluded that the inaccessible medium-voltage cables not subject to 10 CFR 50.49 Environmental Qualification

requirements program, when implemented as described in the required enhancements, will effectively manage aging effects, since it will incorporate periodic inspections and "state of the art" testing techniques. Implementation of this program will provide reasonable assurance that the effects of aging will be managed such that components within the scope of the program will perform their intended functions consistent with the current licensing basis for the period of extended operation.

9. One-Time Inspection Program (B2.1.13)

The One-Time Inspection Program is a new program that will address potentially long incubation periods for certain aging effects, including various corrosion mechanisms, cracking, and selective leaching, and provides a means of verifying that an aging effect is either not occurring or progressing so slowly as to have negligible effect on the intended function of the structure or component. The One-Time Inspection program will be generally consistent with NUREG 1801, Section XI.M.32, "One-Time Inspection" as well as Section XI.M.33, "Selective Leaching," and portions of Section XI.M.29, "Above Ground Carbon Steel Tanks." The One-Time Inspection Program will verify the effectiveness of an existing program, verify that no an aging management program is needed, or determine that degradation is occurring. If degradation is occurring, the One-Time Inspection Program will ensure the degradation is evaluated and corrective actions are taken, including incorporation of appropriate aging management programs.

The program, which has not yet been completely developed, will include a listing of all systems, structures and components that will credit this program for aging management, the aging effects and mechanisms being managed, the materials and environments for the components, the grouping and inspection sampling techniques to be used, identification of inspection locations, acceptance criteria, inspection scope expansion criteria, and required actions for inspection results that fall outside acceptance criteria. The program will be implemented over the next six years such that it will be completed prior to the period of extended operation.

The inspectors reviewed the license renewal program basis documentation, license renewal systems and components which would be covered by the One-Time inspection program, and discussed the planned implementation and schedule with license renewal personnel.

The inspectors concluded that the One-Time Inspection Program, if implemented as described in the license renewal program documents, should ensure that systems and components covered by this program are adequately tested and evaluated prior to entering the period of extended operation.

10. Open Cycle Cooling (Service) Water Program (B2.1.14)

The open-cycle cooling (service) water system program is an existing program which is comparable to NUREG-1801, Section XI.M20, “Open-Cycle Cooling Water System.” The open-cycle cooling water system program manages aging effects such as loss of material due to general, pitting, and crevice corrosion, erosion, MIC, and loss of heat transfer due to biological /corrosion product fouling (e.g., sedimentation, silting) caused by exposure of internal surfaces of metallic components to raw, untreated (e.g. service) water. The aging effects are managed through: (1) monitoring and control of biofouling; (2) flow balancing and flushing; (3) heat exchanger testing; and (4) routine inspections and maintenance program activities to ensure that aging effects do not impair component intended functions.

The inspectors reviewed program documentation, aging management review documents and existing procedures and surveillance. The inspectors also interviewed the program owners, interviewed the service water system engineer and conducted walkdowns to assess the condition of the service water system. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effect.

The inspectors concluded that the open-cycle cooling water system program effectively manages aging effects. Continued implementation of the open-cycle cooling water system program will provide reasonable assurance that the aging effects will be managed so that the service water system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

11. Overhead Load Handling Systems Inspection Program (B2.1.15)

The overhead load handling systems inspection program is an existing program which, when enhanced, will be comparable to NUREG-1801, Section XI.M23, “Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems.” However, the applicant also identified exceptions to the GALL program. The overhead load handling systems inspections program manages aging effects of the structural components and rails of cranes and fuel handling machines associated with heavy load handling that are subject to the requirements of NUREG-0612 and are within the scope of license renewal requiring aging management. The program is primarily focused on the structural components that comprise the bridge and trolley of the overhead cranes that are within the scope of NUREG-0612.

The inspectors reviewed the applicable license renewal program basis documentation, existing overhead crane inspection procedures, and confirmed that the applicant had commitments in place to enhance the program prior to the start of the period of extended operation. The inspectors also interviewed the overhead load handling systems inspection program owner, interviewed applicant maintenance personnel that perform overhead crane structural inspections, and reviewed applicant condition reports to verify identified crane

structural concerns are being addressed through the applicant's corrective action program.

The inspectors also noted that the applicant took exception to a statement in Section XI.M23 of the GALL report. Under the Parameters Monitored/Inspected heading, the Gall stated: "The number and magnitude of lifts made by the crane are also reviewed." The applicant does not track the number and magnitude of lifts within the crane's rated capacity. The inspectors verified that the applicant has implemented administrative controls to ensure that only crane allowable loads are handled so fatigue failure of structural elements is not expected. The containment polar and spent fuel pool cranes cannot realistically approach the 20,000 to 100,000 rated lifts assumed in their design evaluations during the 60 year extended operating period. The applicant does track the number and magnitude of "engineered lifts" that exceed the crane's rated capacity, and these lifts are numerically restricted and evaluated by engineering analysis. Therefore, the inspectors concluded that this exception was acceptable.

The inspectors concluded that the overhead load handling systems inspection program effectively manages aging effects. With the enhancements to be incorporated prior to the period of extended operation, continued implementation of the overhead load handling systems inspection program will provide reasonable assurance that the aging effects will be managed so that the overhead load handling systems structural components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

12. Structural Monitoring Program (B2.1.19)

The structural monitoring program is an existing program which, when enhanced, will be comparable to NUREG-1801, Sections XI.S5, "Masonry Wall Program," XI.S6, "Structures Monitoring Program," and XI.S7, "RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants." The structural monitoring program manages aging effects to ensure that structures and components within its scope retain the ability to perform their intended function. The program is implemented through visual examination of the structures and components. The program also implements provisions of the Maintenance Rule, 10 CFR 50.65, that relate to masonry walls and water-control structures. The program also conforms to the guidance contained in RG 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," NUMARC 93-01, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and Nuclear Energy Institute publication NEI 96-03, "Industry Guidelines for Monitoring the Condition of Structures at Nuclear Power Plants." The program, when enhanced through Action Item 04-099, will include license renewal SSCs not included under the Maintenance Rule SSCs.

The inspectors reviewed the applicable license renewal program basis documentation, existing structural monitoring inspection procedures, and confirmed that the applicant had commitments in place to enhance the program prior to the start of the period of extended operation. The inspectors also

interviewed the structural monitoring program owner, walked down structures including block walls that are within the program scope, reviewed a structural monitoring program health status report, reviewed a structural monitoring augmented inspection report, and reviewed applicant condition reports to verify identified structural concerns are being addressed through the applicant's corrective action program.

The inspectors concluded that the structural monitoring inspection program effectively manages aging effects. With the enhancements to be incorporated prior to the period of extended operation, continued implementation of the structural monitoring inspection program will provide reasonable assurance that the aging effects will be managed so that the structural components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

13. System Monitoring Program (B2.1.20)

The system monitoring program is an existing plant-specific program that manages aging effects for normally accessible, external surfaces of piping, tanks, and other components and equipment within the scope of License Renewal. These aging effects are managed through visual inspection and monitoring of external surfaces for leakage and evidence of material degradation. The program relies upon periodic system walkdowns to monitor degradation of the protective paint or coating, and/or the exterior steel surface area (if no paint or coatings exist, or if the existing protective paint and coatings are degraded to a point whereby the exterior steel surface is exposed). Although no credit is taken for any coating or paint, inspections of the above ground coating or paint will provide an indication of the condition of the material underneath the coating or paint. The walkdowns also visually inspect bolted connections for missing fasteners and degradation such as damaged threads and evidence of corrosion. The minimum walkdown frequency is annual for those systems and components that are accessible during normal plant operation. Systems and components that are only accessible during plant outages, are inspected at least once per refueling interval. The inspection frequency may be increased based on the safety significance, production significance, discovery and/or operating experience of each system.

The applicant planned to enhance the current system walkdown procedure to more specifically address the types of components to be inspected, and to specifically describe the relevant degradation mechanisms and effects of interest, and for use of the corrective action program to document aging related degradation, identified during the inspections, that may affect the ability of the SSC to perform its intended function.

The inspectors reviewed license renewal program basis documentation, aging management review documents, and the existing system engineering walkdown procedure. The inspectors also accompanied the service water system engineer on a routine system walkdown. The inspectors verified that the licensee

performed adequate historic reviews of plant specific experience to determine aging effects.

The inspectors concluded that the system monitoring program adequately managed current plant aging effects. With the enhancements to be incorporated prior to the period of extended operation, continued implementation of the system monitoring program will provide reasonable assurance that the aging effects will be managed so that the plant components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

14. Water Chemistry Program (B2.1.21)

The water chemistry program is an existing program that is consistent with NUREG-1801, Section XI.M2, "Water Chemistry." The water chemistry program manages aging effects such as loss-of-material due to general, pitting and crevice corrosion; cracking due to structure, systems and components; and steam generator tube degradation caused by denting, intergranular attack and outer diameter stress corrosion cracking. The aging effects are managed by controlling the environment to which internal surfaces of systems and components are exposed.

The inspectors reviewed program documentation, aging management review documents, historical chemistry parameter trends, and existing procedures. The inspectors also interviewed the program owners. The inspectors verified that the applicant performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that the water chemistry program effectively manages aging effects. Continued implementation of the water chemistry program will provide reasonable assurance that the aging effects will be managed so that the primary and secondary system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

15. Electrical Equipment Qualification Program (B3.1)

The electrical equipment qualification program is an existing ongoing program which manages component thermal, radiation, and cyclical aging through the use of aging evaluations based on 10 CFR 50.49(f) qualification methods. As required by 10 CFR 50.49, EQ components not qualified for the current license term are to be refurbished or replaced, or have their qualification extended prior to reaching the aging limits established in the evaluation. Aging evaluations for EQ components that specify a qualification of at least 40 years are considered time-limited aging analyses (TLAA) for license renewal. The EQ Program ensures that these EQ components are maintained within the bounds of their qualification bases. The program is consistent with NUREG-1801, Section X.E1, "Environmental Qualification of Electric Components."

The inspectors reviewed program documentation, condition reports, aging management review documents and existing procedures to confirm that the licensee has been successful in effectively managing aging effects of EQ electric components. The inspectors also interviewed the EQ program owner to confirm that the licensee will continue to carry out the EQ program for the duration of the extended operation. The inspectors also verified that the licensee performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that the licensee's existing EQ program has been effective in managing aging effects. The program has been subject to periodic internal and external assessments that facilitate continuous improvement. With continued implementation and effective management, the EQ program will provide reasonable assurance that the aging effects will be managed so that the environmentally qualified plant components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

16. Fatigue Monitoring Program (B3.2)

The fatigue monitoring program is an new program which will be comparable to Section X.M1, "Metal Fatigue of the Reactor Coolant Pressure Boundary," of the GALL report. The fatigue monitoring program is a confirmatory program that will monitor loading cycles due to thermal and pressure transients and cumulative fatigue usage for selected reactor coolant and other component locations. Metal fatigue analyses are considered to be time limited aging analyses (TLAA) under 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." The program will provide an analytical basis for confirming that the actual number of cycles does not exceed the number of cycles used in the design analysis and that the cumulative usage will be maintained below the allowable limit, or that appropriate corrective actions are taken to maintain component cumulative fatigue usage below the allowable limit during the period of extended operation

The inspectors reviewed the applicable license renewal program basis documentation, interviewed the fatigue monitoring program owner, reviewed applicable procedures, confirmed the fatigue monitoring program will include fatigue sensitive locations for older vintage Combustion Engineering plants identified in NUREG/CR-6260, "Application of NUREG/CR-5999 Interim Fatigue Curves of Selected Nuclear Power Plant Components," and reviewed a sample of fatigue monitoring analytical calculations to confirm that the evaluations included the period of extended operation and the effects of reactor water environment if applicable.

The inspectors concluded that the fatigue monitoring program, when implemented as described, will effectively manage aging effects. Implementation of this program will provide reasonable assurance that the effects of aging will be managed such that components within the scope of the program will perform

their intended functions consistent with the current licensing basis for the period of extended operation.

E. Commitment Management

The applicant provided a number of commitments within its application or in docketed correspondence as a result of NRC's review. These commitments addressed either developing or enhancing the aging management programs to ensure that, at the time of extended operation, those programs fully comply with the statements in the application and in the staff's final safety evaluation report. The applicant considered the commitments as preliminary until the final safety evaluation report was issued.

The inspectors reviewed the application and the preliminary commitments and interviewed the applicant's personnel responsible for commitment management. The inspectors determined that the applicant was controlling the commitments and had a process to track the commitments and to ensure applicable dates were met. The inspectors also reviewed the applicant's proposed implementation schedule and determined that it was realistic and that there was reasonable likelihood that the commitments would be completed prior to the period of extended operation.

F. Exit Meeting Summary

The results of this inspection were discussed on December 1, 2005, with Mr. G. Hettel and other members of applicant management in an exit meeting open for public observation at the Lake Michigan College in South Haven, Michigan. The applicant acknowledged the inspection results and presented no dissenting comments.

The inspectors noted that proprietary documents were reviewed during the course of the inspection. The applicant confirmed that all such proprietary documents were returned or destroyed, and the likely content of the report would not involve the proprietary material.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Applicant

P. Harden, Site Vice President
M. Carlson, Engineering Director
G. Hettel, Plant Manager
M. Cimock, LR Lead - Mechanical and Civil/Structural
J. Kneeland, LR Lead - Time Limited Aging Analyses
W. Roberts, LR Lead - Programs
L. Seamans, LR Lead - Electrical
D. Turner, Project Manager, License Renewal
R. Vincent, Acting Project Manager and Licensing lead, License Renewal

Nuclear Regulatory Commission

J. Ellegood, Senior Resident Inspector, Palisades
J. Geissner, Resident Inspector, Palisades
A. Stone, Chief, Engineering Branch 2

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

The following is a list of applicant documents reviewed during the inspection, including documents prepared by others for the applicant. Inclusion of a document on this list does not imply that NRC inspectors reviewed the entire documents, but, rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. In addition, inclusion of a document on this list does not imply NRC acceptance of the document, unless specifically stated in the body of the inspection report.

LICENSE RENEWAL DOCUMENTS

License Renewal Application

Palisades Nuclear Plant Application for Renewed Operating License; March 22, 2005

License Renewal Action Items (Written as a Result of the Inspection)

05-115; Revise Bolting Integrity Program to Address System Monitoring Program; November 9, 2005
05-116; Revise Bolting Integrity Program to Ensure Maintenance Procedures Address Use of Molybdenum Disulfide; November 9, 2005
05-117; Revise COP-22A to Include a Requirement to Initiate Corrective Action Document; November 15, 2005
05-118; Clarify Open Cycle Cooling Water Program in Regard to Service Water Pipes Not Being Coated or Lined; November 15, 2005
05-119; Section 5.2 of LR-AMPBD-10-DSLFUEL Contains Reference to SBO; November 15, 2005
05-120; Perform Self-assessment to Ensure All Promised Document Changes Were Completed; November 15, 2005
05-121; Change Statement in Boric Acid Corrosion Monitoring Program to Indicate That Containment Air Cooler Pans Will Be Monitored; November 15, 2005
05-122; Revise Bolting Integrity Program to Address EPRI NP-5769 Requirements from Volume 2 Section 1; November 15, 2005
05-123; Ensure System Walkdown Attributes Revised to Incorporate Requirement to Open and Inspect Electrical Panels; November 16, 2005

License Renewal Aging Management Program Basis Documents

LR-AMPBD-03-BOLTINTEG; Bolting Integrity Program Basis Document For License Renewal; Revision 2
LR-AMPBD-04-BAC; Boric Acid Control Program Basis Document for License Renewal; Revision 1
LR-AMPBD-05-BURIEDSVC; Buried Services Corrosion Monitoring Program Basis Document for License Renewal; Revision 1
LR-AMPBD-06-CCCW; Closed Cycle Cooing Water Program Basis Document for License Renewal; Revision 2
LR-AMPBD-10-DSLFUEL; Diesel Fuel Monitoring and Storage Program Basis Document for License Renewal; Revision 1

LR-AMPBD-11-EEQ; Electrical Equipment Qualification Program Basis Document for License Renewal; Revision 2
LR-AMPBD-12-FATIGUE; Fatigue Monitoring Program Basis Document for License Renewal; Revision 1
LR-AMPBD-13-FIREPROT; Fire Protection Program Basis Document for License Renewal; Revision 3
LR-AMPBD-15-FAC; Flow Accelerated Corrosion Program Basis Document for License Renewal; Revision 1
LR-AMPBD-17-NONEQELECOM; Non-EQ Electrical Commodity Condition Monitoring Program Basis Document for License Renewal; Revision 3
LR-AMPBD-19-OCCW; Open Cycle Cooling Water Program Basis Document for License Renewal; Revision 1
LR-AMPBD-20-OVHDLOAD; Overhead Load Handling Systems Inspection Program Basis Document for License Renewal; Revision 1
LR-AMPBD-21-ONETIME; One-Time Inspection Program Basis Document For License Renewal; Revision 1
LR-AMPBD-25-STRUCMON; Structural Monitoring Program Basis Document for License Renewal; Revision 2
LR-AMPBD-26-CHEMISTRY; Water Chemistry Program Basis Document for License Renewal; Revision 2
LR-AMPBD-28-SYSMON; System Monitoring Program Basis Document For License Renewal; Revision 1

License Renewal Aging Management Review Reports

LR-AMR-CVC; Chemical and Volume Control System; Revision 3
LR-AMR-CVCS, Attachments 8.1, 8.4 and 8.7; Aging Management Review of Chemical and Volume Control System (Specifically the Regenerative Heat Exchangers and Letdown Coolers); Revision 3
LR-AMR-CMPST, Attachments 8.9, 8.10 and 8.13; Aging Management Review of ASME Class 2 and 3 Component and Electrical Equipment Supports; Revision 3
LR-AMR-DSS; Diesel Support Systems; Revision 3
LR-AMR-ELT; Report Aging Management and Review for Electrical Commodities; Revision 4
LR-AMR-ESF; Engineered Safeguards Features; Revision 4
LR-AMR-ESS, Attachments 8.1, 8.4 and 8.7; Aging Management Review of Engineering Safeguards (Specifically the Primary Water Pump Seal Coolers and the Shutdown Cooling Heat Exchangers); Revision 4

License Renewal Drawings

LR-M-201, Sheet 1; Primary Coolant System; Revision 76
LR-M-202, Sheet 1; Chemical and Volume Control; Revision 69
LR-M-202, Sheet 1A; Chemical and Volume Control; Revision 55
LR-M-202, Sheet 1B; Chemical and Volume Control; Revision 53
LR-M-203, Sheet 1; Safety Injection, Containment Spray & Shutdown Cooling; Revision 47
LR-M-203, Sheet 2; Safety Injection, Containment Spray & Shutdown Cooling; Revision 22

LR-M-204, Sheet 1; Safety Injection, Containment Spray & Shutdown Cooling; Revision 76
LR-M-205, Sheet 1; Main Steam & Auxiliary Turbine Systems; Revision 82
LR-M-205, Sheet 1A; Main Steam & Auxiliary Turbine Systems; Revision 35
LR-M-205, Sheet 1B; Main Steam & Auxiliary Turbine Systems; Revision 36
LR-M-205, Sheet 2; Main Steam & Auxiliary Turbine Systems; Revision 64
LR-M-205, Sheet 2A; Main Steam & Auxiliary Turbine Systems; Revision 32
LR-M-206, Sheet 1; Extractions, Heater Vents & Drains Systems; Revision 48
LR-M-206, Sheet 1A; Extractions, Heater Vents & Drains Systems; Revision 24
LR-M-206, Sheet 1B; Extractions, Heater Vents & Drains Systems; Revision 29
LR-M-206, Sheet 1C; Extractions, Heater Vents & Drains Systems; Revision 33
LR-M-206, Sheet 2; Steam Generator Blowdown Modification; Revision 3
LR-M-207, Sheet 1; Feedwater & Condensate System; Revision 82
LR-M-207, Sheet 1A; Feedwater & Condensate System; Revision 53
LR-M-207, Sheet 1B; Feedwater & Condensate System; Revision 36
LR-M-207, Sheet 1C; Feedwater & Condensate System; Revision 46
LR-M-207, Sheet 1D; Feedwater & Condensate System; Revision 3
LR-M-207,Sheet 2; Auxiliary Feedwater System; Revision 34
LR-M-208, Sheets 1, 1A and 1B; Non-Critical Service Water System; Revision 81
LR-M-209, Sheets 1, 2 and 3; Component Cooling System; Revision 62
LR-M-210, Sheet 1A; Clean Radioactive Waste Treatment System; Revision 20
LR-M-210, Sheet 1B; Clean Radioactive Waste Treatment System; Revision 18
LR-M-210, Sheet 1C; Clean Radioactive Waste Treatment System; Revision 14
LR-M-210, Sheet 2; Clean Radioactive Waste Treatment System; Revision 34
LR-M-211, Sheet 1; Dirty and Gaseous Radioactive Waste Treatment System; Revision 75
LR-M-211, Sheet 2; Gaseous Radioactive Waste Treatment System; Revision 20
LR-M-211, Sheet 3; Gaseous Radioactive Waste Treatment System; Revision 23
LR-M-213; Service Water, Screen Structure and Chlorinator; Revision 84
LR-M-214, Sheet 1; Lube Oil, Fuel Oil, & Diesel Generator Systems; Revision 68
LR-M-215, Sheet 1; Plant Heating System; Revision 88
LR-M-215, Sheet 1A; Plant Heating System; Revision 6
LR-M-216, Sheet 1; Fire Protection System; Revision 40
LR-M-216, Sheet 2; Fire Protection System; Revision 60
LR-M-216, Sheet 3; Fire Protection System; Revision 25
LR-M-218, Sheet 1; Switchgear and Cable Spreading Room Heating, Ventilation and Air Conditioning; Revision 45
LR-M-218, Sheet 2; Containment Building Heating, Ventilation & Air Conditioning; Revision 52
LR-M-218, Sheet 4; Radwaste Area Heating, Ventilation and Air Conditioning; Revision 22
LR-M-218, Sheet 5; Miscellaneous Buildings Heating, Ventilation and Air Conditioning; Revision 27
LR-M-218, Sheet 6; Control Room Heating, Ventilation and Air Conditioning; Revision 14
LR-M-218, Sheet 6A; Control Room Heating, Ventilation and Air Conditioning; Revision 7
LR-M-218, Sheet 7; Control Room Heating, Ventilation and Air Conditioning; Revision 10
LR-M-220, Sheet 1and 2; Make-up and Domestic Water and Chemical Injection Systems; Revision 61

LR-M-221, Sheet 2; Spent Fuel Pool Cooling System; Revision 52
LR-M-653, Sheets 1, 3 and 4; Cooling Water System; Revision 65
LR-M-907; Plant Heating & Oil Systems; Revision 49
LR-WD-950, Sheet 1; Single Line Meter and Relay Diagram - 480 Volt Motor Control Center; Revision BS
LR-WD-950, Sheet 2A; Plant Single Line Diagram; Revision 3
LR-WD-950, Sheet 3; Single Line Meter and Relay Diagram Generator and 4160V System; Revision AE
LR-WD-950, Sheet 3A; Single Line Meter and Relay Diagram; Revision 6
LR-WD-950, Sheet 4; Single Line Meter and Relay Diagram - 2400 Volt System; Revision 49
LR-WD-950, Sheet 21A; Single Line Meter and Relay Diagram 125VDC 120V Instrument and Preferred AC System; Revision 48
LR-WD-1421-31; Palisades Substation; Revision H

License Renewal Miscellaneous Documents

MSE-E-51; Inspection for Identifying Adverse Localized Environments for Electrical Commodities in Scope of License Renewal; Revision 0
MSE-E-52; Periodic Testing of Sensitive Instrumentation Circuits in Scope of License Renewal; Revision 0
MSE-E-53; Periodic Testing for Medium-Voltage Cable in Scope of License Renewal Exposed to Environment Promoting the Growth of Water Trees; Revision 0
MSE-E-54; Periodic Inspection of Water Levels in MH#1, 2 and 3 to Minimize the Growth of Water Trees in Medium-Voltage Cables in Scope of License Renewal; Revision 0
NEI 95-10; Industry Guidance for Implementing the Requirements of 10 CFR part 54 - The License Renewal Rule; Revision 6
NMC Responses to NRC Requests for Additional Information Relating to License Renewal August 23, August 26, and August 31, 2005; September 16, 2005
Preliminary Commitment List; November 15, 2005
Position Paper on Use of Molybdenum Disulfide to Lubricate Fasteners; October 2004
Supplemental Information for the Palisades Application for Renewed Operating License Resulting from Aging Management Review Audit; August 27, 2005

License Renewal Scoping and Screening Reports

LR-SS-CVC; Chemical and Volume Control System; Revision 2
LR-SS-EPS; Emergency Power; Revision 2
LR-SS-ESS; Engineering Safeguards; Revision 2
LR-SS-FOS; Fuel Oil; Revision 2
LR-SS-FPS; Fire Protection (FPS) System; Revision 2
LR-SS-RWS; Radwaste System; Revision 2
LR-SS-SPS; Station Power System; Revision 1
LR-SS-SWY; Switchyard; Revision 1
LR-SS-VAS; Heating, Ventilation, and Air Conditioning System; Revision 2

License Renewal Technical Review Documents

LR-TR-001-SR; Component Identification and Data Processing for Safety-Related SSC within scope of 10 CFR 54.4(a)(1); Revision 2
LR-TR-002-NSAS; Component Identification and Data Processing for Non-Safety Related Affecting Safety Related SSC within Scope of 10 CFR 54.4(a)(1); Revision 2
LR-TR-003-FP; Component Identification and Data Processing for SSC within Scope of 10 CFR54.4(a)(3) for Fire Protection; Revision 3
LR-TR-004-EQ; Component Identification and Data Processing for SSC within Scope of 10 CFR54.4(a)(3) for Fire Protection; Revision 3
LR-TR-009-OE-R1; License Renewal Project, Operating Experience Data Collection Report; Revision 1
LR-TR-016-BOLTING; Bolting Technical Review; Revision 3

CURRENT PLANT DOCUMENTS

Corrective Action Requests (AR) Initiated As a Result of the Inspection

01002112; Fleet Modification Process Does Not Assure Structural Review; October 27, 2005
01002162; Standing water in Power Cable Manholes in Bus 1C Switchgear Room; October 27, 2005
01002169; Water Dripping from Sample Line Near MCC-3 Cable Tray Onto Floor; October 27, 2005
01002251; During License Renewal Walkdown Corrosion Was Identified in Fire Protection Control Panel EC-137 for Diesel Driven Fire Pump P-4; October 27, 2005
01002264; Relay 107X and Space Heater H26A Are Not in the Palisades Equipment Database and LR-SS-EPS Has No Q-list Determination for These Components and Is Not in License Renewal Boundary; October 31, 2005
01002420; Structural Monitoring Program Not Meeting Reporting Requirements; October 27, 2005
01002515; Lube Oil Pipe Support Not Carrying Load; October 27, 2005
01003725; EM-09-13, Step 5.2.3 Table is Incomplete; November 15, 2005
01003789; During License Renewal Walkdown, A Peanut Shell Was Noted in Cable Tray TL021; November 14, 2005
01003813; RIS 2003-13 Not Evaluated as OE; November 15, 2005
01003864; Boric Acid Noted on Gasket from Radwaste Valve; November 16, 2005
01003881; Not Able to Locate Work Order from CPIT # or WR #; November 16, 2005
01004168; Inadequate Condition Evaluation and Cap Closeout; November 17, 2005

Corrective Action Documents Reviewed During the Inspection

ACE003188; Underground Piping Health; November 7, 2003
CA006829; Corrective Action, Potential Non-conservative Interpretation of Standard for Engineered Lift; June 1, 2004
C-PAL-96-0055; 2400 Volt Bus Fast Transfer/ Safeguards Cable Faulted; January 16, 1996
C-PAL-96-1557; Polar Crane Bridge Rail Splice Weld Cracks; November 22, 1996
C-PAL-00-1657; Containment Crane Rail Attachment Bolt Grout Pads Cracked; May 25, 2000
CAP005264; Failure of Fire Main; July 28, 1994

CAP008881; Higher Than Predicted FAC Wear Rates Identified on Moisture Separator E-9C Drain Line; April 15, 2001
CAP008976; West End of Turbine Lube Oil Reservoir Is Settling; April 27, 2001
CAP033823; Turbine Building Wall Deterioration; March 7, 2003
CAP033824; Turbine Building Wall Deterioration; March 7, 2003
CAP034134; Unusual Heating Noted at P-50C Termination Box During Thermography Inspection; March 18, 2003
CAP035009; Unable to Insert 3 New Incore Instrument (ICI) Strings for cycle 17; April 8, 2003
CAP038445; Underground Piping Health; November 5, 2003
CAP040305; E-22 EDG 1-1 Jacket Water Cooler Tubes Found Blocked in Visual Inspection; March 2, 2004
CAP 042726; Increasing Trend in Main Transformer Line Disconnect Hot Spot; July 29, 2004
CAP044026; Reactor Shield Cooling Coils "A" Leaking at Approx 25 GPH; September 28, 2004
CAP044619; Cooling Tower Outlet Side Grating Center I-Beam Corrosion; October 14, 2004
CAP045587; Potential Areas for Improvement to the Raw Water Corrosion Program; December 7, 2004
CAP046093; E-30A and E-30B Cooling Tower Condition; January 13, 2005
CAP046329; White Powder Seen in VH-x4 CAC; January 27, 2005
CAP046760; Thermal Hot Spot Found in VC-10 Motor Supply Breaker 52-2624; February 17, 2005
CAP046853; Discrepancies with Meeting Code Testing Requirements for Buried Piping;
CAP047540; Boric Acid Identified in Dry pans for CACs VH-x1, 2 and 3; April 21, 2005
CAP048291; Water in Manholes #1, #2, and #4 and Cables in Water; June 10, 2005

Miscellaneous Current Plant Documents

ARP-8; Reactor Shield Cooling Hi Temp; Revision 63
DBD-7.02; EQ Master Equipment List; Revision 8
MSM-M-13; Overhead Crane Mechanical Inspection; Revision 27
PO 2003-6048; Purchase Order for Underground Distribution Power Cables (1/C, 5KV Shielded, EPR insulation 750 KCMIC); December 13, 1988
PO 2003-7879; Purchase Order for Station Power Cables (1/c, 5KV Cable, 1000 MCM EPR Insulation); May 2, 1989
PPAC SPS 603; Cable Megger/Safeguard Bus to 1C,1D,1E, (WD 24323350); September 27, 2004
PPAC SPS 822; PM On E-x04 Transformer Out To Busses 1C,1D and 1E; February 16, 2005
PPAC SPS 824; PM On E-x03 Cables To Busses A and F; February 16, 2005
RO-216; Service Water Flow Verification; Revision 3
T-390; Single Tube Testing of the CCW Heat Exchangers; Revision 0
Service Water System Walkdown Check List (Blank); used November 17, 2005

Procedures

Administrative Procedures and Corporate Directives

5.17; Flow Accelerated Corrosion and Service Water Inspection Program Standard; Revision 1
5.23; Boric Acid Corrosion Program Standard; Revision 0
5.24; Reactor Vessel Integrity Program Standard; Revision 0
5.28; Conduct of Systems Engineering; Revision 1
5.35; Leak Management Program; Revision 0
9.12; Environmental Qualification of Electrical Equipment; Revision 13
9.30; Q-list Interpretations; Revision 16

Chemistry Procedures
COP-1; Primary Coolant System Chemistry; Revision 56
COP-16A; Operating Procedure for Component Cooling Water System Chemistry; Revision 13
COP-22; Operating Procedure for Diesel Generator Cooling Water Chemistry; Revision 10
COP-22A; Diesel Fuel Oil Testing Program; Revision 5
Basis Document for COP-16A; Component Cooling Water System Chemistry; Revision 6
Basis Document for COP-22; Diesel Generator Cooling Water Chemistry; Revision 4
Basis Document for COP-22A; Diesel Fuel Oil Testing Program; Revision 4
Basis Document for COP-29; Shield Cooling System Chemistry; Revision 5
CPAL-RCM-006; Palisades Offsite Procedure: Palisades Refueling Crane Manual; Revision 1

Engineering Manual Procedures
EM-09-08; Flow Accelerated Corrosion (FAC) Program; Revision 11
EM-09-13; Inservice Inspection Pressure Testing Program; Revision 8
EM-09-15; Raw Water Corrosion Program; Revision 5
EM-09-16; Heat Exchanger Condition Assessment Program; Revision 4
EM-09-20; Boric Acid Corrosion Control Program; Revision 0
EM-20; Performance Monitoring; Revision 11
EM-25-01; Maintenance Rule Structural Monitoring; Revision 1
EM-30-01; Infrared Thermography Program; Revision 2

Fleet Procedures
FP-E-CAP-01; Electrolytic Capacitor Aging Management; Revision 0
FP-PE-FAC-01; Fleet Procedure: Flow Accelerated Corrosion Inspection Program; Revision 1

Procedure Change Requests

PCR010484; Procedure Change Request: EM-09-15; January 6, 2005
PCR010485; Procedure Change Request: EM-09-16; January 6, 2005
PCR015158; Procedure Change Request: RSL-D-16; August 30, 2005
PCR015159; Procedure Change Request: FHS-M-24; August 30, 2005
RCE000288; Failure of Turbine-driven AFW Pump Alternate Steam Supply Piping; February 5, 2000

Reports

EA-EC-00095-01; Engineering Analysis: Palisades Flow Accelerated Corrosion Screening Criteria and Evaluation Procedure; Revision 2
EA-DTE-797-01; Degradation of Mobil DTE-797 Lubricant as Related to the Loss of Ventilation in the Auxiliary Feedwater Pump Room; May 15, 1987
EA-FAC-96-01; Engineering Analysis: Palisades Flow Accelerated Corrosion Screening Criteria and Evaluation Procedure; Revision 0
EA-TED-95-01; Engineering Analysis: Palisades Flow Accelerated Corrosion Program — System Susceptibility Analysis; Revision 1
EA-TED-95-06; Engineering Analysis: EPRI CHECKWORKS Flow Accelerated Corrosion Model for the Feedwater System; Revision 1
EA-TED-95-07; Engineering Analysis: EPRI CHECKWORKS Flow Accelerated Corrosion Model for the Condensate System; Revision 1
NMC-PN1-05; Component Cooling Water HX # E54-A; October 3, 2004
PAL-06Q-301; Regenerative Heat Exchanger 60-Year Design Life; Revision 1
PAL-06Q-304; Environmentally Assisted Fatigue Analysis for Palisades Nuclear Plant; Revision 4
PAL-06Q-307; Environmentally Assisted Fatigue Analysis for Palisades Nuclear Plant Safety Injection Nozzle; Revision 0
Palisades Refueling Crane Inspection Report; Crane Inspections on L-1 Containment Building Polar Crane per Westinghouse Procedure CPAL-RCM-006, Revision 1; completed April 8, 2003
Master Heat Exchanger Testing Plan; March 1, 2005
SIR-02-177; Report on System Review and Recommendations for a Transient and Fatigue Monitoring System; Revision 0
Structural Monitoring Program Augmented Inspections Report; First Interval, First Period

System and Program Health and Status Reports

120V AC Preferred Power; November 10, 2005
125V Vital DC Power; November 10, 2005
480V AC Power; November 10, 2005
2400V AC Power Report; November 10, 2005
Closed-Cycle Cooling Water System; September 21, 2005
Environmental Qualification Program; March 4, 2005
Fire Protection Program; November 10, 2005
Flow Accelerated Corrosion Program; November 15, 2004
Flow Accelerated Corrosion Program; March 1, 2005
Flow Accelerated Corrosion Program; July 6, 2005
Reactor Vessel Program; January 24, 2005
Structural Monitoring Program; June 10, 2002
Switchyard; November 10, 2005

Work Orders

24012793; Eliminate Cracks in the Containment Dome Crane Rail Piers; January 28, 2003
24111241; Moisture Separator and Reheater, Replace Piping on 8" Drain Line Beneath E-9C; March 22, 2003
24212714; Perform Crane Inspections on L-1, L-3, L-6, and L-906 per Westinghouse Procedure CPAL-RCM-006 during Refueling Outages; April 19, 2003
24323564; Component Cooling Water Heat Exchanger; November 8, 2004
24422794; Shield Cooling Coil A Leaks at APPR 25GPH Repair Per EAR-2005-0060; September 25, 2004
24423083; Diver Inspections of Intake Crib and Intake Crib Riprap; July 17, 2005
24521505; Diver Inspections/Cleaning of Intake Bay and Under Screen House; January 28, 2005

Work Requests

499; Pump Water out of Manholes in Bus 1C Switchgear Room; October 27, 2005
631; Remove Boric Acid from Valve Gasket for MV-CRW138; November 16, 2005
284343; Eliminate Cracks in the Containment Dome Crane Rail Piers; January 28, 2003
284354; Moisture Separator and Reheater, Replace Piping on 8" Drain Line Beneath E-9C; March 22, 2003
295842; Disassemble and Repair Leaking Drain Valve; March 13, 2005
308598; Remove and Reinstall Tank Manway to Stop Leak; July 18, 2005

LIST OF ACRONYMS USED

ADAMS	Agency Wide Access Management System
AMP	Aging Management Program
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATWS	Anticipated Transient Without Scram
CAP	Corrective Action Program Document
CCCW	Closed Cycle Cooling Water
CDS	Condensate and Condenser System
CFR	Code of Federal Regulations
CVCS	Chemical Volume and Control System
DRS	Division of Reactor Safety
EPRI	Electric Power Research Institute
EPS	Emergency Power System
EQ	Environmental Qualification
FAC	Flow Accelerated Corrosion
FPS	Fire Protection System
FSAR	Final Safety Analysis Report
FWS	Feedwater System
GALL	Generic Aging Lessons Learned
HVAC	Heating, Ventilation, and Air Conditioning
IMC	Inspection Manual Chapter
IR	Inspection Report
ISG	Interim Staff Guidance
kV	kiloVolt (1000 Volts)
LR	License Renewal
LRA	License Renewal Application
NMC	Nuclear Management Company, LLC
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
PARS	Publically Available Records System
PCS	Primary Coolant System
RCE	Root Cause Evaluation
SBO	Station Blackout
SDC	Shutdown Cooling
SFP	Spent Fuel Pool Cooling
SPS	Station Power System
SSC	System, Structure, or Component
SWY	Switchyard System
TLAA	Time Limited Aging Analyses
VAC	Volts-Alternating Current (AC)
VDC	Volts-Direct Current (DC)