August 10, 2007

Mr. Christopher J. Schwarz
Site Vice President
Entergy Nuclear Operations, Inc.
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT NRC INTEGRATED INSPECTION REPORT 05000255/2007004

Dear Mr. Schwarz:

On June 30, 2007, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. The enclosed report documents the inspection findings which were discussed on July 10, 2007, with members of your staff.

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

The report documents three NRC-identified findings and three self-revealed findings of very low safety significance (Green). Five of these findings were determined to involve violations of NRC requirements. Additionally, a licensee identified violation which was determined to be of very low safety significance is listed in the report. However, because the violations were of very low safety significance and because the issues have been entered into your corrective action program, the NRC is treating these findings as Non-Cited Violations (NCVs) consistent with Section VI.A.1 of the Enforcement Policy.

If you contest the subject or severity of an NCV, you should provide a response with a basis for your denial, within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Palisades facility.

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

Sincerely,

/RA/

Christine A. Lipa
Chief, Branch 4
Division of Reactor Projects

Docket No. 50-255
License No. DPR-20

Enclosure: Inspection Report 05000255/2007004
w/Attachment: Supplemental Information

cc w/encl: M. Kansler, President and Chief Executive Officer/
Chief Nuclear Officer
J. Herron, Senior Vice President
Senior Vice President, Engineering and
Technical Services
M. Balduzzi, Senior Vice President and
Chief Operating Officer, Regional
Operations, NE
O. Limpias, Vice President, Engineering
J. Ventosa, General Manager, Engineering
J. DeRoy, Vice President, Operations Support
Director, NSA
J. McCann, Director, Nuclear Safety & Licensing
E. Harkness, Director of Oversight
General Manager, Plant Operations
C. Faison, Manager, Licensing
L. Lahti, Manager, Licensing
W. Dennis, Assistant General Counsel
W. DiProfio
W. Russell
G. Randolph
Supervisor, Covert Township
Office of the Governor
State Liaison Office, State of Michigan
Michigan Department of Environmental Quality -
Waste and Hazardous Materials Division
Michigan Dept of Attorney General

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Letter (or Memo) to Mr. Christopher J. Schwarz from Christine A. Lipa dated August 10, 2007.

SUBJECT: PALISADES NUCLEAR PLANT NRC INTEGRATED INSPECTION REPORT 05000255/2007004

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DPR-20
Report No:	05000255/2007004
Licensee:	Entergy Nuclear Operations, Inc.
Facility:	Palisades Nuclear Plant
Location:	Covert, MI
Dates:	April 1 through June 30, 2007
Inspectors:	J. Ellegood, Senior Resident Inspector J. Giessner, Resident Inspector J. Groom, Resident Inspector G. Hausman, Senior Engineering Inspector R. Jickling, Senior Emergency Preparedness Analyst J. Cassidy, Health Physicist R. Russell, Emergency Preparedness Analyst J. Neurauter, Senior Engineering Inspector
Approved by:	C. Lipa, Chief Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000255/2007004; 04/01/2007 - 06/30/2007; Palisades Nuclear Plant; Operability Evaluations, Identification and Resolution of Problems, Event Follow-up, and Other Activities.

This report covers a 3-month period of baseline inspections. The inspections were conducted by Region III inspectors and resident inspectors. This report includes six Green findings, five of which were Non-Cited Violations (NCVs). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)." Findings for which the SDP does not apply may be "Green" or be assigned a severity level after Nuclear Regulatory Commission (NRC) management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. A self-revealed finding was identified for the licensee's failure to follow work order instructions when performing maintenance on a main feedwater regulating valve position indicator. As a result, an automatic reactor trip occurred on a Reactor Protection System actuation for steam generator low feedwater level. The licensee performed a cause analysis for the event and entered the event into their corrective action program (CAP).

  The finding was more than minor because the failure to follow instructions caused an actual transient (i.e., reactor trip). This finding did not constitute a violation of NRC requirements and is considered very low safety significance (Green) since there was no impact on safety-related equipment or mitigation function and availability. The finding also has a cross-cutting aspect in the area of human performance, because the licensee failed to use adequate human error prevention techniques. (H.4(a)) (Section 4OA3)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, for failing to control system parameters in the high pressure safety injection (HPSI) system injection lines to preclude water hammer from occurring during either routine or accident conditions. As a result, the injection lines experienced water hammer on multiple occasions. The licensee has entered the condition into the CAP and changed procedures to limit the potential for water hammer.

  The inspectors concluded that the condition is more than minor, because if left uncorrected, the finding would become a more significant safety concern. Specifically, the cause of the water hammer would continue to worsen without additional action. Also, the periodic water hammering of the injection line could weaken piping supports. The finding included a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate the problem such that the

resolution addressed causes and the extent of condition prior to the NRC raising concerns. (P.1(c)) (Section 1R15)

- Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III for failing to establish adequate measures to ensure suitability of the application of the material for the 'A' Service Water (SW) pump. Specifically, the shaft for the 'A' SW pump was constructed of carbon steel and was susceptible to wear due to sand and silt from the ultimate heat sink. The licensee has entered the condition into the CAP and has replaced the shaft with a stainless steel shaft.

  The inspectors concluded that the condition is more than minor, because if left uncorrected the finding would become a more significant safety concern. Specifically, without prompting by the NRC, the wear on the 'A' SW pump shaft would have continued and would have reduced the margin of safety for the allowable stresses on the pump shaft. The finding was not of more than very low safety significance because in the current condition the 'A' SW pump remained operable, although degraded. The finding included a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to implement a CAP with a low threshold for identifying issues. (P.1(a)) (Section 4OA2)

- Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion VIII, "Identification and Control of Materials, Parts and Components" was identified for failing to have adequate control measures to prevent the use of defective parts. Specifically, a fuel leak developed due to failure of a defective part on the 1-2 emergency diesel generator (EDG) on February 22, 2007. In 2005, a snubber on the same EDG had failed in the same manner. The failed part has been replaced, and there are no other suspect snubbers in the diesel engines on site.

  The inspectors concluded the finding was more than minor because the EDG was inoperable for greater than the Technical Specification allowed outage time. The finding was not of more than very low safety significance because, while the EDG was inoperable, it did not represent an actual loss of safety function for greater than the Technical Specification allowed outage time. In addition, the inspectors concluded this finding had an associated cross cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate the 2005 snubber failure such that the resolution addressed the extent of condition. (P.1(c)) (Section 4OA2)

Cornerstone: Emergency Preparedness

- Green. The inspectors identified a Green NCV of 10 CFR 50.47 for failure to properly implement approved Emergency Action Levels (EAL). As a result of the improper EAL implementation, site personnel responsible for EAL declarations could improperly classify some Alerts as Site Area Emergencies (SAEs). The licensee has provided training to site personnel regarding correct declaration of this EAL.

  The inspectors determined that the licensee's failure to properly implement the EALs represented a performance deficiency that warranted a significance determination. The inspectors concluded that the finding affected the Emergency Preparedness

cornerstone objective for the attribute of Emergency Response Organization (ERO) readiness in that the licensee improperly implemented an EAL. In addition, the finding had a cross-cutting aspect in the area of human performance, resource component. Specifically, the training of personnel resulted in improperly classifying the drill scenario. (H.2.(b)) (Section 4OA5)

Cornerstone: Public Radiation Safety

- Green. A self-revealed finding of very low safety significance and an associated violation of NRC requirements was identified for the failure to effectively survey slings before granting unconditional release from the Radiologically Controlled Area (RCA). This was first identified when a sling alarmed the PM-7 (portal radiation monitor) at the security building on October 13, 2006. A few days later, an individual working outside of the RCA became contaminated after handling a rigging/lifting sling. Extent of condition surveys identified 17 additional slings outside the RCA and/or Protected Area that alarmed the tool monitor. Radioactive material was also identified on two of these slings using a conventional hand-held frisker survey instrument.

  The issue was more than minor because it was associated with the Program/Process attribute of the Public Radiation Safety cornerstone and affected the cornerstone objective to ensure the adequate protection of the public domain as a result of routine civilian nuclear reactor operation. A Green NCV of 10 CFR 20.1501 was identified for the failure to adequately survey materials to evaluate the presence of radioactive material. The cause of this deficiency is a legacy issue and does not represent current licensee performance. Therefore, this deficiency does not have any cross-cutting aspects. (Section 2PS3)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period at or near full-rated thermal power until an automatic reactor trip occurred on May 8, 2007, due to power being inadvertently removed from the 'B' feed regulating valve (FRV) during maintenance. The licensee extended the outage to repair two control rod drive mechanism seals and to replace the upper shaft on one service water (SW) pump. The licensee restarted the plant and synchronized to the grid on May 14, 2007. The plant returned to near full-rated thermal power on May 16, 2007. On May 18, 2007, the licensee reduced power to 87 percent to repair a moisture separator reheater stop valve. The plant returned to near full-rated thermal power on May 19, 2007, and remained there for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

.1 Adverse Weather Preparation

a. Inspection Scope

The inspectors verified that licensee personnel implemented the appropriate actions for warm weather preparation. The inspectors reviewed licensee check lists for warm weather preparation. The inspectors interviewed personnel, walked-down plant areas, and reviewed the licensing and design basis for structures and equipment. This is considered one system sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdowns (71111.04Q)

a. Inspection Scope

The inspectors completed three equipment alignment inspection samples by performing partial walkdowns on the following risk-significant plant equipment:

- component cooling water (CCW) system with one train unavailable;
- emergency core cooling with shutdown cooling valves out of service; and
- emergency diesel generator (EDG) 1-1 during unplanned EDG 1-2 inoperability.

During the walkdowns, the inspectors verified that power was available, accessible equipment and components were appropriately aligned, and no open work orders for known equipment deficiencies existed which would impact system availability.

The inspectors also reviewed selected condition reports (CRs) related to equipment alignment problems and verified that identified problems were entered into the corrective action program (CAP) with the appropriate significance characterization and that planned and completed corrective actions were appropriate and implemented as scheduled. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Area Walkdowns (71111.05Q)

a. Inspection Scope

The inspectors completed seven fire protection inspection samples by touring the following areas in which a fire could affect safety-related equipment:

- spent fuel pool and spent fuel pool equipment room (Fire Area 13 and 17);
- turbine building (Fire Area 23D, 607-foot elevation);
- turbine building (Fire Area 23D, 590-foot elevation);
- auxiliary building hallway (611-foot elevation);
- turbine building (Fire Area 23D, 625-foot elevation);
- condensate pump room (Fire Area 23A); and
- CCW room (Fire Area 16, 590-foot, 611-foot, and 625-foot elevations).

The inspectors verified that transient combustibles and ignition sources were appropriately controlled, and that the installed fire protection equipment in the fire areas corresponded with the equipment that was referenced in the Updated Final Safety Analysis Report (UFSAR), Section 9.6, "Fire Protection." The inspectors also assessed the material condition of fire suppression systems, manual fire fighting equipment, smoke detection systems, fire barriers, and emergency lighting units. For selected areas, the inspectors reviewed documentation for completed surveillances to verify that fire protection equipment and fire barriers were tested as required to ensure availability.

The inspectors reviewed selected CRs associated with fire protection to verify that identified problems were entered into the CAP with the appropriate significance characterization. The inspectors also verified that planned and completed corrective actions were appropriate. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Fire Protection - Drill Observation and Annual Inspection (71111.05A)

a. Inspection Scope

The inspectors observed an unannounced fire drill on April 26, 2007, and another two drills on June 12 and June 28, 2007, to evaluate the fire brigade's performance. The inspectors observed the brigade's response to the fire to verify timeliness, proper donning of equipment, and command and control by the brigade leader. In addition, the inspectors reviewed procedures, fire fighting equipment, breathing air requirements, and corrective action for adverse conditions. Finally the inspectors, on a sampling basis, verified that members assigned to the fire brigade met the qualification requirements. The inspectors evaluated the licensee's critique of the drill and actions taken as a result of the critique. Specific attributes evaluated are listed in Inspection Procedure (IP) 71111.05AQ, "Fire Protection," Section 02.02. This constituted one sample.

b. Findings

No findings of significance were identified.

1R06 Flood Protection (71111.06)

a. Inspection Scope

The inspectors completed one inspection sample pertaining to flood protection measures for external flooding events. The inspectors reviewed the licensee's flood analysis and licensing basis for the site to determine license basis requirements for flood protection. The inspectors viewed manholes to determine if the licensee dewatered manholes where safety-related equipment was located. In addition, the inspectors reviewed site procedures for external flooding to determine if specified actions could be completed. Further, the inspectors reviewed CRs to verify that corrective actions for previously identified flood protection problems were appropriate and had been properly implemented.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

The inspectors completed one inspection sample of licensed operator requalification training by observing a crew of licensed operators during simulator training on

May 17, 2007. The inspectors assessed the operators' response to the simulated events which included a large steam break.

The inspectors verified that the operators were able to effectively mitigate the events through accurate and timely implementation of applicable alarm response procedures – Off-Normal Procedures and Emergency Operating Procedures. The inspectors also observed the post-training critique to assess the licensee evaluators' and the crew's ability to self-identify performance deficiencies.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

The inspectors completed two inspection samples pertaining to maintenance effectiveness by reviewing maintenance rule implementation activities for the following systems and components:

- High Pressure Safety Injection (HPSI), and
- EDG Ventilation and Design Basis Accident Sequencer.

The inspectors reviewed the licensee's implementation of the maintenance rule requirements to verify that component and equipment failures were evaluated and appropriately dispositioned. The inspectors also verified that the selected systems and components were scoped into the maintenance rule and properly categorized as (a)(1) or (a)(2) in accordance with 10 CFR 50.65.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13Q)

a. Inspection Scope

The inspectors completed four inspection samples. The inspectors reviewed the following activities to verify that the appropriate risk assessments were performed prior to removing equipment for work. The inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors verified the appropriate use of the licensee's risk assessment tool and risk categories in accordance with Administrative Procedure 4.02, "Control of Equipment," Revision 36, and Fleet Procedure FP-OP-RSK-01, "Risk Monitoring and Risk Management," Revision 0. Documents reviewed are listed in the Attachment.

- Yellow risk due to planned work on the 1-1 EDG;
- Elevated risk due to planned work on auxiliary feedwater (AFW) and CCW;
- Control room HVAC modifications; and
- Yellow risk due to emergent work on 1-2 EDG.

The inspectors also verified that CRs related to emergent equipment problems were entered into the CAP with the appropriate significance characterization. Select CRs related to risk management during maintenance activities were reviewed to verify that planned corrective actions were appropriate and had been implemented as scheduled.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors completed five inspection samples. For the five Operability Recommendations listed below, the inspectors evaluated the technical adequacy of the evaluations to ensure that Technical Specifications (TS) operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors reviewed the UFSAR to verify that the system or component remained available to perform its intended function. In addition, the inspectors reviewed compensatory measures implemented to verify that the compensatory measures worked as stated and the measures were adequately controlled. In addition, the inspectors verified that the CRs generated for equipment operability issues were entered into the licensee's CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

- compensatory actions for Appendix R concerns in CCW room;
- operability concerns with possible water hammer in HPSI piping;
- overcurrent relays on 2400 vacuum breakers;
- dissimilar metals for 7A SW pump shaft; and
- EDG 1-2 following slow start.

b. Findings

Introduction: The inspectors identified a Green Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion III, for failing to control system parameters in the HPSI system injection lines to preclude water hammer from occurring during both routine and accident conditions.

Discussion: On January 16, 2007, during injection line depressurization following testing of the HPSI pump, the plant received anomalous safety injection tank (SIT) level alarms. The licensee informed the inspectors that no changes in SIT level occurred and further investigation into the cause of the alarms would occur. During this test of the HPSI system, the licensee also experienced unseating of the HPSI injection check valve.

Review of operating history also identified that the check valve had unseated on four prior occasions. In addition, on January 19, 2007, during an entry into containment, licensee personnel noted ~60 drop per minute leak from a swagelok fitting in the HPSI system. During discussions with craft personnel regarding the swagelok, the craft personnel indicated that the line had been periodically subjected to water hammer. The inspectors reviewed the action request (AR) for the January SIT tank level anomalies and the licensee identified that water hammer during depressurization of the injection lines had occurred. A CAP search identified water hammer events in October 2006 and November 2004. In addition, in 1990 the licensee made significant repairs to a different injection line to address periodic water hammers that had occurred over the life of the plant.

As part of the corrective actions following the 1990 event, the licensee changed the procedures to preclude venting of the SITs when the primary was hot. Over the next several years, the licensee analyzed the injection system and developed a set of proposed corrective actions to address water hammer on the injection lines. These proposals included removal of lagging on the injection line near the primary loop and instrumenting the line to detect void formation. In addition, the licensee calculated that with lagging removed, check valve seat leakage of less than .02 gallons per minute (gpm) would preclude void formation and subsequent water hammer. However, none of the recommendations was implemented. In addition, the licensee's procedures to measure check valve leakage lack the sensitivity to detect leakage at 0.02 gpm. These procedures establish limits of 2.5 gpm for operability. While consistent with TS requirements, this value greatly exceeds the value discussed above, which is the value at which void formation could occur.

Further review of operating history shows that in 2005, pressure started to build up in the injection line following evolutions where the HPSI pump pressurized the line. Following inspector discussions with the licensee regarding identified water hammer events, the licensee instituted controls in the depressurization procedure to minimize the potential for void formation. During a recent HPSI surveillance test, the licensee demonstrated the ability to depressurize the line without causing water hammer.

During the forced outage in May, the inspectors performed a walkdown in containment of HPSI and SIT piping to look for damage to susceptible piping. During the walkdown, the inspectors noted wear marks on SIT piping near pipe restraints. These marks were only present on the line that had been subjected to water hammer and the inspectors concluded they were additional evidence of water hammer in the line.

Analysis: The inspectors considered the licensee allowing water hammer to occur in injection lines to be a performance deficiency that warranted a significance determination. Specifically, the licensee's design did not analyze periodic water hammers of the injection line. In addition, previous plant operating history that subjected injection lines to water hammer had damaged piping supports and the replacement supports relied on prevention of water hammer to maintain operability. However, the licensee failed to implement actions sufficient to preclude water hammer in the injection lines. The inspectors concluded that the condition is more than minor, because if left uncorrected the finding would become a more significant safety concern. Specifically, the cause of the water hammer would continue to worsen without additional

action. Also, the periodic water hammering of the injection line could weaken piping supports. The finding was not of more than very low safety significance because, in the current state, the injection systems remain operable. Therefore, the inspectors concluded the finding was of very low safety significance, Green. The finding included a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate the problem such that the resolution addressed causes and the extent of condition prior to the NRC raising concerns. (P.1.(c))

Enforcement: Title 10 CFR 50, Appendix B, Criterion III, states, in part, "Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures and instructions." Contrary to this requirement, the licensee failed to operate the injection systems in a manner to preclude water hammer, despite the system not being designed to be subjected to water hammer. However, because this violation was of very low safety significance and because the issue was entered into the licensee's CAP (AR 01087255), this violation is being treated as an NCV, consistent with Section VI.A.1 of the Enforcement Policy (NCV 05000255/2007004-01, Failure to Preclude Water Hammer in HPSI Injection Piping).

1R19 Post-Maintenance Testing (71111.19)

The inspectors completed five inspection samples pertaining to post-maintenance testing by assessing testing activities that were conducted for the following maintenance activities:

- 1-1 EDG fuel system maintenance;
- P-67B, low pressure safety injection (LPSI) pump overcurrent relays;
- P-7A, SW pump shaft replacement;
- rod drop times for control rod drive mechanisms (CRDM) 13 and 23; and
- 1-2 EDG following voltage regulator replacement.

The inspectors observed portions of the post-maintenance testing and/or reviewed documentation to verify that the tests were performed as prescribed by the work orders and test procedures; that applicable testing prerequisites were met prior to the start of the tests; and that the effect of testing on plant conditions was adequately addressed by the control room operators. The inspectors reviewed documentation to verify that the test criteria and acceptance criteria were appropriate for the scope of work performed, reviewed test procedures to verify that the tests adequately verified system operability, reviewed documented test data to verify that the data was complete, and that the equipment met the prescribed acceptance criteria. Further, the inspectors reviewed CRs to verify that post-maintenance testing problems were entered into the CAP with the appropriate significance characterization. For select CRs, the inspectors verified that the corrective actions were appropriate and implemented as scheduled.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

.1 Unplanned Forced Outage

a. Inspection Scope

The inspectors observed and assessed licensee performance during an unplanned outage to recover from a plant trip and to replace CRDM seals. The outage lasted from May 8 through May 14, 2007. This inspection constitutes one sample. The inspectors performed the following activities during the forced outage:

- observed plant trip response, shutdown and cooldown to verify the licensee performed plant operations in accordance with TS and plant procedures;
- verified decay heat removal systems were aligned per TS;
- verified electrical equipment alignments;
- verified reactor coolant system instrumentation;
- verified reactivity control system;
- verified inventory control systems;
- verified hanger and supports for the 2A loop HPSI and SIT piping;
- verified risk assessment aligned with plant clearance activities;
- accompanied licensee personnel during containment closeout tours to verify that debris was removed that could contribute to sump clogging and look for evidence of boric acid leakage; and
- observed plant startup to verify the licensee aligned plant systems properly for plant startup, and conducted plant startup in accordance with TS and plant procedures.

b. Findings

No findings of significance were identified

.2 Polar Crane and Heavy Lift Inspection Operating Experience Smart Sample (OpESS) FY2007-03

a. Inspection Scope

From April 25 through May 2, 2007, and May 29 through June 1, 2007, the inspectors reviewed the licensee's current reactor vessel head drop analysis in conjunction with the NRC's OpESS FY2007-03, "Crane and Heavy Lift Inspection, Supplemental Guidance for IP 71111.20." This inspection supports the Fall 2007 refueling outage and does not constitute an inspection sample. The inspector performed the following activities during the inspection:

- Reviewed the licensee's polar crane preventative maintenance program procedures and the polar crane manufacturer's recommended maintenance. Also reviewed a sample of licensee records of polar crane testing and inspections completed prior to reactor disassembly and reactor head lift.

- Reviewed licensee's submittals and commitments related to Generic Letters 80-113 and 81-07, "Control of Heavy Loads." Verified that the licensee entered an NRC question related to the Palisades reactor vessel head drop analysis licensing basis into their CAP (AR 01088466).

- Reviewed licensee's calculations related to a postulated reactor vessel head drop. Reviewed licensee's procedures that remove and install the reactor vessel head during refueling operations with respect to conformance to limiting parameters evaluated in the reactor head drop analysis, EA-CAP047706-01, "Palisades Reactor Head Drop Analysis," (i.e., load drop weight, load drop height, and medium through which load drop occurs (air)).

- Reviewed licensee procedures that control the total weight lifted by the polar crane to remove and install the reactor vessel head during refueling operations and the polar crane rated lift capacity.

- Reviewed licensee calculations of rigging and special lifting devices used to remove and install the reactor vessel head during refueling operations.

- Reviewed licensee's procedures that control reactor vessel safe load path to remove and install the reactor vessel head during refueling operations.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed six surveillance tests and/or reviewed test data of selected risk-significant systems, structures, or components (SSCs). The inspectors assessed, as appropriate, whether the SSCs met the requirements of the TS, the UFSAR, Palisades Administrative Procedure 9.20, TS Surveillance and Special Testing Program, and Engineering Manual EM-09-02 and EM-09-04, "Inservice Testing of Plant Valves and Inservice Testing of Selected Safety-Related Pumps." One of the samples was an inservice test and one sample was the primary coolant system (PCS) leakrate procedure. The inspectors also determined whether the testing effectively demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. Further, the inspectors reviewed selected CRs regarding surveillance testing activities. The inspectors verified that the identified problems were entered into the licensee's CAP with the appropriate significance characterization and that the planned and completed corrective actions were appropriate.

- EDG 1-2 24 hour loaded run;
- subcooled margin monitor channel A;
- safety injection system testing;
- IST test for 8C AFW pump;

- PCS leakrate surveillance, April 28, 2007 (including licensee actions described in letter dated February 27, 2007, and confirmed by NRC Confirmatory Action Letter NRR-07-023, dated March 29, 2007 (related to pressurizer butt welds)); and
- steam generator u-tube analysis.

b. Findings

No findings of significance were identified.

1EP2 Alert and Notification System Evaluation (71114.02)

a. Inspection Scope

The inspectors discussed with emergency preparedness (EP) staff the operation, maintenance, and periodic testing of the Alert and Notification System (ANS) in the Palisades Nuclear Plant's plume pathway emergency planning zone to determine whether the ANS equipment was adequately maintained and tested in accordance with emergency plan commitments and procedures. The inspectors reviewed records of monthly trend reports and siren test failures for June 2005 through February 2007, and maintenance checklists for October 2005 through October 2006.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed and discussed with plant EP staff the emergency plan commitments and procedures that addressed the primary and alternate methods of initiating an ERO activation to augment the on-shift ERO as well as the provisions for maintaining the plant's ERO call-out roster. The inspectors also reviewed reports and a sample of CAP records of unannounced off-hour augmentation tests, which were conducted June 21, 2005, through December 12, 2006, to determine the adequacy of the drill critiques and associated corrective actions. The inspectors also reviewed the EP training records of a sample of approximately 31 Palisades ERO personnel, who were assigned to key and support positions, to determine whether they were currently trained for their assigned ERO positions.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed a sample of 2006 and 2007 Nuclear Oversight Audits of the Palisades Nuclear Plant EP program to verify that these independent assessments met the requirements of 10 CFR 50.54(t). The inspectors also reviewed critique reports and samples of CAP records associated with the 2006 biennial exercise, as well as various EP drills conducted in 2006 and 2007, in order to verify that the licensee fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities. Additionally, the inspectors reviewed a sample of EP items, corrective action program, and corrective actions related to the facility's EP program and activities to determine whether corrective actions were acceptably completed.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

1EP6 Emergency Preparedness Drill Evaluation (71114.06)

a. Inspection Scope

The resident inspectors evaluated the conduct of one site team drill on May 22, 2007, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. This scenario was part of the licensee's planned Drill/Exercise Performance evaluation. The inspectors observed emergency response operations in the simulated control room, Technical Support Facility, and Emergency Operations Facility to verify that event classification and notifications were properly completed in accordance with E1-1 Emergency Plan Classification Matrix, and Site Emergency Plan, Revision 15. The inspectors also attended the licensee critique of the drill to compare any inspector-observed weakness with those identified by the licensee in order to verify whether the licensee was properly identifying failures.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (71122.03)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most current annual Radiological Environmental Operating Report dated May 10, 2007, and licensee assessment results to evaluate whether the REMP was implemented as required by the Radiological Environmental Technical Specifications and the Offsite Dose Calculation Manual (ODCM). The inspectors reviewed the report for changes to the ODCM with respect to environmental monitoring and commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, interlaboratory comparison program, and data analysis. The inspectors reviewed the ODCM to identify environmental monitoring stations and evaluated licensee self-assessments, audits, licensee event reports, and interlaboratory comparison program results. The inspectors reviewed the Final Safety Analysis Report for information regarding the environmental monitoring program and meteorological monitoring instrumentation. The inspectors also reviewed the scope of the licensee's audit program to determine if it met the requirements of 10 CFR 20.1101(c).

This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked down selected air sampling stations (greater than 30 percent) and approximately 20 percent of the thermoluminescent dosimeter monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition.

The inspectors observed the collection and preparation of a variety of environmental samples including drinking water, air, and milk. The environmental sampling program was evaluated to determine if it was representative of the release pathways as specified in the ODCM and that sampling techniques were performed in accordance with station procedures.

The inspectors evaluated the condition of the meteorological instruments using observations and record reviews, and assessed whether the equipment was operable,

calibrated, and maintained in accordance with guidance contained in the Final Safety Analysis Report, NRC Safety Guide 23, and licensee procedures. The inspectors assessed whether the meteorological data readout and recording instruments, including computer interfaces and data loggers, that measure and record wind speed, wind direction, delta temperature, and atmospheric stability measurements were available on the licensee's computer system and whether this information was available in the control room.

The inspectors reviewed each event documented in the Radiological Environmental Operating Report which involved missed samples, inoperable samplers, lost thermoluminescent dosimeters, or anomalous measurements for the cause and corrective actions.

The inspectors reviewed the ODCM for significant changes that resulted from land use census modifications, or sampling station changes made since the last inspection. This included a review of technical justifications for changed sampling locations. The inspectors assessed whether the licensee performed reviews required to ensure that the changes did not affect their ability to monitor the impacts of radioactive effluent releases on the environment.

The inspectors reviewed the calibration and maintenance records for five air samplers to evaluate operating parameters. The inspectors reviewed results of the vendor's interlaboratory comparison program and quality assurance programs to assess the adequacy of environmental sample analyses performed by the licensee.

The inspectors reviewed quality assurance audit results of the REMP to determine whether the licensee met the Technical Specification/ODCM requirements.

These reviews represent six samples.

b. Findings

No findings of significance were identified.

.3 Unrestricted Release of Material from the Radiologically Restricted Area

a. Inspection Scope

The inspectors observed the access control location where the licensee monitored potentially contaminated material leaving the radiologically controlled area (RCA) and inspected the methods used for control, survey, and release of material from this area. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use to verify that the work was performed in accordance with plant procedures.

The inspectors evaluated whether the radiation monitoring instrumentation was appropriate for the radiation types present and was calibrated with appropriate radiation sources that represented the expected isotopic mix. The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material

and verified that there was guidance on how to respond to an alarm indicating the presence of licensed radioactive material. The inspectors evaluated the licensee's equipment to determine if radiation detection sensitivities were consistent with the NRC guidance contained in IE Circular 81-07 and IE Information Notice 85-92 for surface contamination, and Health Physics Position HPPOS-221 for volumetrically contaminated material.

The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters such as counting times and background radiation levels. The inspectors assessed whether the licensee had established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

These reviews represent two samples.

b. Findings

Introduction: A self-revealed finding of very low safety significance and an associated NCV of an NRC requirement was identified for the failure to effectively survey slings prior to unconditional release from the RCA.

Description: On October 13, 2006, a sling was issued from the non-radiological side tool room for work outside of the Protected Area. When exiting the Protected Area, the exit Personnel Monitor (PM-7) alarmed when the sling was hand carried out of the plant Protected Area. On October 21, 2006, a Personnel Contamination Event occurred outside the RCA when a worker handled a sling issued from the non-radiological side tool room. The licensee identified 17 additional slings that alarmed the tool monitor while reviewing the extent of condition. Small but detectable levels of radioactive material were also identified on two of these slings using a conventional hand-held frisker.

The exact events that allowed these slings to leave the RCA could not be determined. The licensee changed the survey methods for releasing material from the RCA about 10 years ago. This change introduced tool monitors into the survey program, replacing the hand-held frisker. The licensee performed "clean sweeps" in an effort to identify materials that were surveyed and released using hand-held friskers but may have detectable contamination using a tool monitor. Specifically, following the last two refueling outages, the licensee performed "clean sweeps" by taking a tool monitor to selected areas of the plant and placing random sets of tools through the tool monitor.

Analysis: The failure to adequately survey slings prior to the unconditional release from the RCA represents a performance deficiency as defined in NRC Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." The inspectors determined that the issue was associated with the program/process attribute of the Public Radiation Safety cornerstone and affected the cornerstone objective to ensure the adequate protection of the public domain as a result of routine civilian nuclear reactor operation. Therefore, the issue was more than minor

and represented a finding that was evaluated using the Significance Determination Process (SDP).

Since the finding involved the adequate protection of the public domain, the inspectors utilized IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," to assess its significance. The inspectors determined that the finding involved the Radioactive Material Control Program. The inspectors determined that the finding did not involve violations of transportation requirements, the public radiation exposure was less than 0.005 rem, and there were less than five occurrences of findings involving the control of radioactive material for the last two years. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety significance (Green).

As described above, these events appear to be legacy issues and do not represent current licensee performance. Consequently, this deficiency does not have any cross-cutting aspects.

Enforcement: Title 10 CFR 20.1501 requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present.

> Pursuant to 10 CFR 20.1003, *survey* means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation.

Contrary to the above, prior to October 13, 2006, the licensee did not make all required surveys to assure compliance with 10 CFR 20.1301, which limits radiation levels to individual members of the public. Specifically, the conditions identified with at least two slings found to be contaminated using conventional hand-held friskers in October 2006 indicated that radioactive material had not been properly surveyed prior to its release outside the RCA.

Corrective actions taken by the licensee included segregating and labeling slings used inside the RCA to restrict the slings from being released to unrestricted areas. Since the licensee documented this issue in its corrective action program (AR 1055531 and subsequent Apparent Cause Evaluation 1059240) and because the violation is of very low safety significance, it is being treated as an NCV (NCV 50-255/2007004-02 Failure to Effectively Survey Slings Before Granting Unconditional Release from the RCA).

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, condition reports, and special reports related to the radiological environmental monitoring program since

the last REMP inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also assessed whether the licensee's self-assessment program was capable of identifying and addressing repetitive deficiencies or significant individual deficiencies that were identified by the problem identification and resolution process.

The inspectors also reviewed corrective action documents related to the REMP that affected environmental sampling and analysis, and meteorological monitoring instrumentation. Staff members were interviewed and documents were reviewed to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

- initial problem identification, characterization, and tracking;
- disposition of operability/reportability issues;
- evaluation of safety significance/risk and priority for resolution;
- identification of repetitive problems;
- identification of contributing causes;
- identification and implementation of effective corrective actions;
- resolution of NCVs tracked in the corrective action system; and
- implementation/consideration of risk significant operational experience feedback.

This review represented one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope

The inspectors reviewed the licensee's records associated with the EP and mitigating system PIs listed below. The inspectors verified that the licensee accurately reported these indicators in accordance with relevant procedures and Nuclear Energy Institute guidance endorsed by NRC. Specifically, the inspectors reviewed licensee records associated with PI data reported to the NRC for the period July 2006 through March 2007. Reviewed records included: Procedural guidance on assessing opportunities for the three PIs; assessments of PI opportunities during predesignated control room simulator training sessions, the 2006 biennial exercise, and other drills; revisions of the roster of personnel assigned to key ERO positions; and results of periodic ANS operability tests; records for Mitigating System Performance Index (MSPI). The following PIs were reviewed:

- ANS;
- MSPI, HPSI;
- MSPI for heat removal system (AFW);

- ERO drill participation; and
- drill and exercise performance.

These activities completed five inspection samples.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that CRs were being generated and entered into the CAP with the appropriate significance characterization. For select CRs, the inspectors also verified that identified corrective actions were appropriate and had been implemented or were scheduled to be implemented in a timely manner commensurate with the significance of the identified problem.

b. Findings

No findings of significance were identified.

.2 Semiannual Trend Review to Identify Trends

a. Inspection Scope

As required by IP 71152, "Identification and Resolution of Problems," the inspectors performed a review of the licensee's CAP action requests to identify trends that could indicate the existence of a more significant safety issue. The inspectors also reviewed the Operations Department Monthly Performance Report, quarterly Department Roll Up Meetings (DRUMs), the Site DRUM Report, and the Corrective Action Program Performance Indicator Summary. The inspectors' review for potential trends included the results from the daily inspector CAP item screening discussed in Section 4OA2.1. The plant CAP action request screening meetings and Performance Assessment Review Board meetings were observed to review the licensee's level of effort in identifying potential trends, and any associated corrective actions that were planned or implemented. In addition, the inspectors reviewed issues documented outside the normal CAP that included, maintenance work orders, component status reports, performance indicators, nuclear oversight observations and evaluations, and operations' control room logs.

The inspectors' review nominally considered the six-month period of January through June 2007. The inspectors compared and contrasted their results with the results obtained by the licensee during previous internal reviews. The list of documents reviewed is included in the references. This constitutes one sample of trend reviews.

b. Assessment and Observations

The inspectors noted two trends which were not adequately addressed by the licensee: the first is related to SW system sand/silt/corrosion issues; the second is related to containment ventilation monitor, RIA-1817.

The inspectors reviewed CAPs related to the SW system in the past six months. Several trends were noted. The licensee wrote CAP 01077244, "Potential Trend in Critical Service Water Control Valve Condition," to look at erosion and/or cavitation on valves in the SW system. Work orders were written to rebuild the valves in question. CAP 01073944, “Apparent Trend in Leaks for Service Water Piping,” was written to look at the trend in SW leaks. Several pipes had indications (through-wall leaks) of sand/silt erosion or microbiologically influenced corrosion. The apparent cause was degradation in components made of carbon steel and susceptible to microbiologically influenced corrosion and wall thinning from SW sand/silt/erosion/corrosion. Actions are being put in place to ensure the piping replacement schedule for the next outage is adequate. CAP 01080385 documented that valve CV-0821, ‘A’ CCW SW heat exchanger outlet valve, failed to stroke due to sand/silt build-up. The licensee determined the valve and its opposite train valve CV-0822 were operable, but degraded with compensatory actions. This valve failure was an NCV of 10 CFR 50, Appendix B, Criteria XVI, Corrective Actions, in the first quarter of 2007 since it was a repeat failure (NCV 05000255/2007002-01, CV-0821 Corrective Actions Not Effective to Prevent Repeat Failure). The inspectors also pointed out there were many SW pump packing replacements which had occurred in the last several months. The inspectors were concerned about the erosion which was occurring as the shaft was in a sand/silt environment. The licensee determined that two of the three pumps have high grade stainless steel shafts at the packing location which are less susceptible to wear. The 'A' SW pump did not have a high grade stainless steel shaft. During a forced outage in May 2007, the licensee determined the ‘A’ SW pump shaft was below the 2-inch minimum diameter and the shaft was replaced. The finding for this issue is listed in b.2 below.

The inspectors concluded that although the CAPs for SW system issue were evaluated within the specific area of tasking, the licensee missed an opportunity to determine a larger trend in the SW system related to SW erosion and sand/silt intrusion. There was no open CAP to evaluate the system and possible common cause failure concerns. The licensee wrote CAP 01088457 to address the larger issue and evaluate the system performance. This failure to detect a trend was considered a minor performance deficiency since currently no additional equipment was found to be inoperable.

The second trend of concern was the RIA-1817, Containment Gas Radiation Monitoring, counts rising over the current cycle. The inspectors reviewed CAP 01080837 for the RIA-1817 warning alarm which occurred in March 2007, and the evaluation by plant operations. The evaluation looked at about six months of data and determined the counts in the containment had risen most likely due to some known fuel failures coupled with the fact that CRDM leakage to the containment sump had risen. This causes overall containment activity counts to be elevated. The inspectors reviewed the last five years of data and determined that the RI-1817 values observed in early 2007 were the highest in five years. Some of the time evaluated in the past 5 years did include periods

when there were some failed fuel rods and high CRDM leakrates. The licensee wrote CAP 01087838, RIA-1817 Long Term Response to CRDM Leakage and Fuel Failures, to evaluate the long-term trend for the plant. The licensee hypothesized that the current fuel rod failures were from first burned/higher power fuel assemblies and thus more fission products were in the containment atmosphere. The licensee will perform an evaluation in this area.

c. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50 Appendix B, Criterion III, for failing to establish adequate measures to ensure suitability of the application of the material for the 'A' SW pump. Specifically the shaft for the 'A' SW pump was constructed of carbon steel and was susceptible to wear due to sand and silt from the ultimate heat sink. The shaft diameter was found below the vendor recommendation for minimum shaft diameter.

Description: The inspectors had noted during the first quarter of 2007 there were many SW pump packing replacements which had occurred in the last several months. The repacks had occurred on all pumps, but the 'A' SW pump seemed to have more repacks than the others. The inspectors were concerned about the erosion which was occurring as the shafts were in the sand/silt environment. During questioning, the licensee determined that two of the three pumps have high grade stainless steel shafts at the packing location which are wear resistant. The 'A' SW pump did not have a high grade stainless steel shaft. Although there were calculations for the stainless steel shafts for acceptable stress on the shaft, there was none for the 'A' SW shaft composed of carbon steel. The licensee wrote CAP 01078379 to address the minimum pump diameter that was acceptable for the 'A' SW pump with low margin. Using crude measuring techniques, the licensee measured that shaft to be 2 1/16 inches in diameter; and therefore had 1/16 inch of margin for the minimum diameter for that shaft based on shaft horsepower. There was no calculation of record for this shaft. The inspectors were concerned that with the minimal margin and the crude method used to determine shaft diameter, the shaft could be below the minimum acceptable diameter. In addition, inspectors were concerned that no data existed that established a wear rate for the shaft and the pump might not be able to meet its mission time. The licensee indicated based on the inspectors' comments that they would determine an accurate method to measure shaft diameter and perform a calculation for the minimum shaft diameter. During a forced outage in May 2007, the licensee determined the 'A' SW pump shaft was below the 2-inch minimum diameter and the shaft was replaced. The diameter was measured at approximately 1.9 inches. The inspectors concluded that the measures the licensee took to ensure the shaft would conform to the vendor specifications essential for safety related equipment were not adequate and that the there was no plan to monitor shaft degradation until prompted by the inspectors.

Analysis: The inspectors considered the licensee not having adequate design measures for the selection and review for the shaft material for the 'A' SW pump to be a performance deficiency that warranted a significance determination. Specifically, the licensee's design did analyze or take into account high wear caused by sand/silt. There were no measures created to ensure the design would be acceptable. The as-found condition of the pump shaft was below the vendor specification. The inspectors

concluded that the condition is more than minor, because if left uncorrected the finding would become a more significant safety concern. Specifically, without NRC prompting, the wear on the 'A' SW pump shaft would continue and would reduce the margin of safety for the allowable stresses on the pump. The finding was not of more than very low safety significance because in the current condition the 'A' SW pump remained operable, although degraded. The licensee calculated the safety factor for shaft stresses in the current degraded state as being 1.5. The inspectors considered this reasonable margin. Therefore, the inspectors concluded the finding was of very low safety significance (Green). The finding included a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to implement a CAP with a low threshold for identifying issues. The licensee failed to identify the reduced shaft diameter in a timely manner commensurate with the safety significance until the NRC raised the concerns. (P.1(a))

Enforcement: Title 10 CFR 50, Appendix B, Criterion III, states, in part, "Measures shall also be established for selection and review for suitability of application of materials, parts and equipment, and processes that are essential to the safety-related functions of the SSCs." Contrary to this requirement, the licensee failed to establish adequate measures to ensure the shaft material was adequate for the application and failed to ensure there was an adequate process to determine this degraded condition. As a result, the shaft diameter was below the vendor minimum and was degraded. However, because this violation was of very low safety significance and because the issue was entered into the licensee's corrective action program (AR 01087896) and the shaft was replaced, this violation is being treated as an NCV, consistent with Section VI.A.1 of the Enforcement Policy (NCV 05000255/2007004-03, Service Water Pump 7A Shaft Degraded).

4OA3 Event Follow-up (71153)

.1 Unit Trip - May 8, 2007

a. Inspection Scope

The inspectors responded to a Unit trip on May 8, 2007. The inspectors observed operator actions in the control room, equipment and operator response in the plant, and discussed the trip with operations, engineering and licensee management to gain an understanding of the event and assess follow-up actions. The inspectors reviewed operator actions taken in accordance with licensee procedures and reviewed unit and system indications to verify the actions and system responses were as expected. The inspectors discussed the trip with the licensee's root cause team and assessed the team's action to gather, review, and assess information. The inspectors also reviewed the initial investigation, event response information, and proposed actions.

The licensee's investigation identified that the Unit tripped when trouble shooting was taking place on a position indicator for the 'B' feed regulating valve. The licensee's investigation determined the maintenance staff inadvertently removed power from the FRV instead of the position indicator for that valve as was originally intended. The removal of power from the 'B' FRV caused the valve to close and the plant tripped automatically on low steam generator level in less than one minute. All safety functions

operated as expected. The inspectors also reviewed the initial licensee notification to verify that it met the requirements of 10 CFR 50.72.

b. Findings

Introduction: A Green self-revealed finding with no associated violation was identified after an unplanned reactor trip resulted from the licensee's failure to follow work order instructions. Specifically, while performing maintenance on the main feedwater regulating valve position indicator, the technician disconnected the power to the valve controller instead of the valve position indicator. The power loss caused the closure of the valve which led to a reactor trip on steam generator low feedwater level.

Discussion: On May 8, 2007, an I&C technician was performing maintenance in the control room EC-01 panel on a failed main feedwater regulation valve position indicator (POI-0703) that indicates the feedwater valve position for the "B" steam generator. While measuring the loop current per Step 10-B of work order (WO) 00325275 (a non-safety related work order), the technician obtained a verbal peer check to ensure that the work order was referring to link 32. After the verbal peer check, the technician proceeded to slide open what he believed was link 32. In reality, the link that he slid open was the adjacent link 33, which supplied power to the valve controller. The opening of link 33 removed power from the valve controller causing the valve to close. The valve closure terminated feedwater flow to the "B" steam generator. Shortly after, an automatic reactor trip occurred due to low feedwater level in the "B" steam generator.

After performing a cause analysis, the licensee determined that the opening of the incorrect link was due to not performing an adequate peer check in the control room back panel with limited access. The verbal peer check method was not an approved method for performing a peer check. Plant standards and management expectations required positive verification by the checker to validated the performer is manipulating the correct component.

Analysis: The inspectors concluded that the failure to follow work order instructions was a performance deficiency warranting a significance evaluation. The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612 "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," Example 4b, because the failure to follow work instructions resulted in a reactor trip. Specifically, the technicians opened link 33 vice link 32.

The inspectors assessed the finding using IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," and determined that the Initiating Events cornerstone was effected. This finding is of very low safety significance (Green) since there was no impact on safety related equipment or mitigation functions availability. The finding also has a cross-cutting aspect in the area of human performance, because the licensee failed to use adequate human error prevention techniques. (H.4(a))

Enforcement: No violation of regulatory requirements was identified. This issue is considered to be a Finding (FIN 05000255/2007004-04, Reactor Trip Caused by Human

Performance Error). The licensee entered this finding into their corrective action program as CAP 01087757.

.2 (Closed) Licensee Event Report (LER) 05000255/2007004-00: Shutdown Cooling Train Inoperable

Between April 25, 2006, and April 30, 2006, the licensee isolated one train of shutdown cooling to perform maintenance on a valve. During the maintenance, the plant was in mode 6, low water level, and TS 3.9.5 required two trains of shutdown cooling to be operable. Contrary to the TS requirement, the licensee had only one train of shutdown cooling operable. The inspectors previously reviewed this condition and issued NCV 05000255/2007002-04. No additional findings were identified. This LER is closed.

4OA5 Other Activities

.1 (Closed) (Unresolved Item) URI 05000255/2007002-02: Emergency Action Level (EAL) Classification During Drill

The inspectors reviewed the issues related to the licensee's drill conducted on March 14, 2007. After reviewing the drill scenario and selected drill documents, interviewing key drill participants and controllers, and studying the EAL basis, the inspectors concluded that the licensee improperly implemented their approved EAL scheme (see Finding and NCV below). In addition, the inspectors reviewed an Event Notification form that used the incorrect initiating condition number. Since the drill critique process did not identify the error, the inspectors evaluated the deficiency in accordance with the SDP. The inaccuracy only affected the form used in the drill; the licensee's staff in the emergency response facilities knew the correct initiating condition number. Therefore, the inspectors concluded that it was a minor performance deficiency.

Introduction: The inspectors identified a Green NCV for failure to properly implement approved EALs. As a result of the improper EAL implementation, site personnel responsible for EAL declarations could improperly classify some Alerts as Site Area Emergencies (SAE).

Description: During a drill on March 14, 2007, the licensee developed a scenario that included a security event. Based on the security event the Emergency Director declared an SAE. This was the expected EAL declaration per the drill scenario. The inspectors reviewed the requirements of the EAL as well as supporting documentation and concluded that the scenario did not meet the threshold for an SAE. Based on discussions with licensee EP personnel and other qualified Emergency Directors, the inspectors determined that this declaration was consistent with the training provided to site personnel.

Following the drill, the inspectors further reviewed Bulletin 2005-02 and discussed the scenario with regional and headquarters experts. This review identified that the EALs provide two tracks for security events. The inspectors determined that the expected EAL determination in the scenario was from one EAL track; however, the security event

prescribed in the scenario actually applied to the other EAL track, which led to the improper EAL implementation.

Analysis: The inspectors determined that the licensee's failure to properly implement the EALs represented a performance deficiency that warranted a significance determination. The inspectors concluded that none of the examples in IMC 0612, Appendix E applied. The inspectors concluded that the finding affected the Reactor Safety/Emergency Preparedness cornerstone objective for the attribute of ERO readiness in that the licensee improperly implemented an EAL. The inspectors reviewed the finding in accordance with IMC 0609, Appendix B. Based on this review, the inspectors concluded the finding was of very low safety significance (Green). In addition, the finding had a cross-cutting aspect in the area of human performance, resources component. Specifically, the training of personnel resulted in personnel improperly classifying the drill scenario. (H.2(b))

Enforcement: Title 10 CFR 50.47(b)(4) states, in part, that, "a standard emergency classification scheme and action level scheme, the basis of which include facility system and effluent parameters, is in use by the nuclear facility licensee..." Contrary to this requirement, the licensee improperly implemented the approved standard emergency classification scheme and action level scheme such that an event that should properly be classified as an Alert would be over-classified as a Site Area Emergency. However, because this violation was of very low safety significance and because the issue was entered into the licensee's corrective action program (CR-PLP-2007-01412), this violation is being treated as an NCV, consistent with Section VI.A.1 of the Enforcement Policy (NCV 05000255/2007004-005, Failure to Properly Implement Approved Emergency Action Level Scheme).

.2 (Closed) URI 0500255/2005003-01: Evaluate Adequacy of Operator Training for Meeting Appendix R Requirements for a Potential Fire in All Fire Areas and/or Fire Zones

During the NRC's 2005 Fire Protection Triennial Baseline Inspection, the inspectors identified a URI associated with ONP-25.1, "Fire Which Threatens Safety-Related Equipment," Revision 15, and ONP-25.2, "Alternate Safe Shutdown Procedure," Revision 20. Based on the complexity of the procedures, the inspectors could not conclude that all operators could perform the necessary operator actions (i.e., assess the availability of and select the appropriate free of fire damaged equipment within the shutdown time requirements) required to meet the requirements of 10 CFR Part 50, Appendix R, Section III.G.3, for a potential fire in any fire area and/or fire zone. As a result, the inspectors concluded that additional review was necessary to evaluate operator training with respect to Appendix R fire scenarios.

During this inspection period, the inspectors reviewed current licensee procedures ONP-25.1 " Fire Which Threatens Safety-Related Equipment," Revision 17, and ONP-25.2, "Alternate Safe Shutdown Procedure," Revision 22, reviewed the licensee's ONP-25.1 and ONP-25.2 lesson plan requirements and training objectives, reviewed and performed a walk-through of the latest ONP-25.1 and ONP-25.2 Simulator Exercise Guide, reviewed the latest completed classroom and simulator training exercise records, interviewed an operator training instructor and operator, and reviewed feedback

summary forms submitted by operators who had completed the latest ONP-25.1 and ONP-25.2 training. The results of the inspectors' review identified no safety significant findings. Therefore, the inspectors concluded that the necessary operator actions required to meet Appendix R requirements could be reasonably performed and that this URI is closed.

.3 Failed 1-2 EDG Snubber

Introduction: A self-revealed NCV of 10 CFR 50, Appendix B, Criterion VIII, "Identification and Control of Materials, Parts and Components" was identified for failing to have adequate control measures to prevent the use of defective parts. Specifically, a fuel leak developed due to failure of a defective part on the 1-2 Emergency diesel generator (EDG) on February 22, 2007, that resulted in aborting a post-maintenance test. The cause was related to a defective part which had been installed in October of 2005. The part has been replaced, and there are no other suspect snubbers in the diesel engines on site.

Description: On February 22, 2007, while conducting post-maintenance testing of the 1-2 EDG for a scheduled maintenance window, a fuel leak developed on the fuel injector for the 5L cylinder. During the maintenance window, the licensee removed the snubber, performed a visual inspection, and reinstalled the snubber. Following the failure, licensee personnel secured the EDG and declared the EDG inoperable due to the snubber fuel leak and wrote CAP 01078887. Upon disassembly of the injector, the licensee discovered the snubber had cracked in a manner similar to a prior failure in 2005 on another cylinder on the 1-2 EDG. The licensee replaced the failed snubber and verified operability of the EDG. Subsequent testing of the snubber indicated that an improper heat treatment had been applied to the snubber.

The licensee had a similar snubber failure occur on EDG 1-2 (5R) on November 20, 2005. During the evaluation of this failure, the licensee concluded that the site's snubber inventory had been contaminated with defective snubbers in the early 1990's. After discussions with the vendor, the licensee concluded that any snubber failures related to defective parts would occur within the first 24 hours of diesel operation. Since the EDG 1-2 run time had exceeded the 24 hour infant mortality window, the licensee concluded that no additional snubber replacement was warranted. In addition, the licensee evaluated the load capability of the diesel with one cylinder inoperable and concluded the diesel could carry accident loads. Since the original snubber valve installation for both items in question occurred at the end of 2005, both defective snubbers would have been in the EDG 1-2 at the same time. The licensee is assessing the past operability for this condition. There is no current safety concern since all the snubbers for the 1-1 EDG have been changed out, and the snubbers on the 1-2 EDG which were from the susceptible lot have also been replaced.

Analysis: The inspectors concluded that the failure to ensure the use of proper material from site stock for the safety-related application was a performance deficiency which was within the licensee's ability to foresee and correct. The inspectors reviewed the samples of minor issues in IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," and determined that there were no examples related to this issue. Consistent with the guidance in IMC 0612, "Power Reactor Inspection Reports,"

Appendix B, "Issue Screening," the finding is more than minor since the defective snubber valves impacted the mitigating systems cornerstone for availability, reliability and capability of the class 1E, onsite EDG system and its associated attribute of equipment performance.

The inspectors performed a Phase 1 SDP review of this finding using the guidance provided in IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," in accordance with the "SDP Phase 1 Screening Worksheet for Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstones." The Region III Senior Risk Analyst assisted in this evaluation and reviewed the licensee's risk assessment report for this deficiency: "Assessment of the EDG 1-2 Snubber Valve Failures." The exposure period for this deficiency was the 23-day period from October 28 through November 20, 2005, the period which both defective snubber valves were installed in EDG 1-2 at the same time.

The Senior Risk Analyst determined that the finding was a design/qualification deficiency which impacted operability of EDG 1-2; therefore, the finding did not screen out and the Phase 1 review continued with questions on potential risk significance.

The finding did not represent a loss of the emergency power system since the opposite train of emergency power was available. The finding did not represent an actual loss of safety function of EDG 1-2 for greater than its TS allowed outage time. This is based on the following:

- The snubber valve material defect did not result in a demand failure of the EDG;
- The time between failures was approximately 135 operating hours on EDG 1-2; and
- No additional failures were observed (given that other snubber valves with material defects may have been installed).

The Senior Risk Analyst noted that if there had been a demand, the EDG would not have failed during its 24-hour Probabilistic Risk Assessment mission time because the second snubber valve operated much longer than the first snubber valve.

Regarding the remainder of the SDP Phase 1 review, the finding did not represent an actual loss of safety function of one or more non-Technical Specification trains of equipment, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating events. Therefore, this finding is best characterized as a finding of very low risk significance (Green).

In addition, the inspectors concluded this finding had an associated cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate the 2005 snubber failure such that the resolution addressed the extent of condition. (P.1(c))

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion VIII, "Identification and Control of Materials, Parts and Components" requires, in part, measures to be established for the identification and control of materials, parts and components. The identification and control measures shall be designed to prevent the use of incorrect

parts. Contrary to this, on or about October 24, 2005, the sub-standard part for the 5L fuel line snubber was installed into the 1-2 EDG, a safety-related component. As identified in the licensee's root cause for the 2005 failure, historic methods of part control were inadequate to prevent introduction of a defective part. However, because this violation was of very low safety significance and because the issue was entered into the licensee's corrective action program (CR-PLP-2007-00824) this violation is being treated as an NCV, consistent with Section VI.A.1 of the Enforcement Policy (NCV 05000255/2007004-06, Defective Part Installed on 1-2 EDG).

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. J. Broschak and other members of licensee management on July 10, 2007. Licensee personnel acknowledged the findings presented. The inspectors asked licensee personnel whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exit meetings were conducted for:

- Emergency Preparedness inspection with Mr. M. Richey on April 27, 2007;
- Closure of URI 05000255/2005003-01 with Ms. B. Dotson on May 15, 2007;
- Refueling and Other Outage Activities (IP 71111.20): Polar crane heavy lifts and polar crane inspections utilizing inspection guidance in OpESS FY2007-03 with Mr. C. Schwarz, Site Vice-President, and other licensee staff on June 1, 2007; and
- Radiological Environmental Monitoring Program with Mr. C. Schwarz on June 12, 2007.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, for being dispositioned as NCVs.

Cornerstone: Public Radiation Safety

Title 10 CFR 20.1501 requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Contrary to these requirements, the contents of M-18 Oil/Water Separator were collected and packaged for off-site processing/disposal without conducting surveys to identify radioactive material.

This is documented in the licensee's corrective action program as AR 01043090. This radioactive material control program issue represents a finding of very low safety significance because it did not involve violations of transportation requirements, the public radiation exposure was less than 0.005 rem, and there were less than five events.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
C. Schwarz, Site Vice President
G. Baustian, Training Manager
T. Blake, Nuclear Safety Assurance Manager
A. Blind, Design Engineering Manager
L. Blocker, Operations Manager
J. Broschak, Engineering Director
N. Brott, Emergency Preparedness Coordinator
J. Burnett, RETS-REMP Analyst
T. Davis, Operations Training Supervisor
B. Dotson, Regulatory Compliance
J. Fontaine, Emergency Preparedness Coordinator
J. Ford, Emergency Preparedness Manager
G. Higgs, Maintenance Manager
K. Housh, Appendix R Engineer
P. Johnson, Safety Manager
T. Kirwin, Plant Manager
L. Lahti, Licensing Manager
A. Lyon, Design Engineer
D. Malone, Regulatory Affairs
D. Nestle, Acting Chemistry and Radiation Protection Manager
B. Nixon, Assistant Operations Manager
D. Nestle, Radiation Protection Manager, Acting
M. Richey, Acting Plant General Manager
G. Sleeper, Assistant Operations Manager
K. Smith, Quality Assurance Manager
J. Smith, Mechanical Design Supervisor
B. Smoot, Radiation Protection Supervisor
T. Stell, Operations Training
T. Swiecicki, Appendix R Engineer
P. Williams, Sr. RP Technician - Outage ALARA Planner

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000255/2007004-01	NCV	Failure to Preclude Water Hammer in HPSI Injection Piping (Section 1R15)
05000255/2007004-02	NCV	Failure to Effectively Survey Slings Before Granting Unconditional Release from the RCA. (Section 2PS3)

05000255/2007004-03	NCV	Service Water Pump 7A Shaft Degraded (Section 4OA2)
05000255/2007004-04	FIN	Reactor Trip Caused by Human Performance Error (Section 4OA3)
05000255/2007004-05	NCV	Failure to Properly Implement Approved Emergency Action Level Scheme (Section 4OA5)
05000255/2007004-06	NCV	Defective Part Installed on 1-2 EDG (Section 4OA5)

Closed

05000255/2007004-01	NCV	Failure to Preclude Water Hammer in HPSI Injection Piping (Section 1R15)
05000255/2007004-02	NCV	Failure to Effectively Survey Slings Before Granting Unconditional Release from the RCA. (Section 2PS3)
05000255/2007004-03	NCV	Service Water Pump 7A Shaft Degraded (Section 4OA2)
05000255/2007004-04	FIN	Reactor Trip Caused by Human Performance Error (Section 4OA3)
05000255/2007004-05	NCV	Failure to Properly Implement Approved Emergency Action Level Scheme (Section 4OA5)
05000255/2007004-06	NCV	Defective Part Installed on 1-2 EDG (Section 4OA5)
05000255/2005003-01	URI	Adequacy of Operator Training for Meeting Appendix R Requirements for Potential Fire in All Fire Areas and/or Fire Zones (Section 4OA5)
05000255/2007002-02	URI	Emergency Action Level (EAL) Classification During Drill (Section 4OA5)
05000255/2007004-00	LER	Shutdown Cooling Train Inoperable (Section 4OA5)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection
ONP-12; Acts of Nature; Revision 23

1R04 Equipment Alignment
SOP-16; Component Cooling Water; Checklist 16; Revision 2
M-209 Sh A; System Diagram Component Cooling System; Revision 6
M-209 Sh-1-3; P&ID Component Cooling System; Revision 48
CAP 01087373; MV-CC-123 CCW Chemical Addition Tank Outlet Out of Position; April 24, 2007
SOP-22; Diesel Generator System; Attachment 8; Revision 42

1R05 Fire Protection
Palisades Fire Hazard Analysis Report; Revision 7
Fire Drill Critique for Fire Drill on April 26, 2007, in 1D Switchgear Room (Auxiliary Building); April 30, 2007 (Unannounced Drill)
CAP 01087449; Fire Drill Deficiencies Observed During Unannounced Drill; April 26, 2007
CAP 01087676; Response Time to Fire Drill Inadequate; May 6, 2007
Palisades Plant - End of Quarter fire Brigade Review; April 25, 2007
Fire Protection Implementing Procedure (FPIP) -3; Plant Fire Brigade; Revision 13
FPIP-6; Fire Suppression Training; Revision 15
FPIP-2; Fire Emergency Responsibility and Response; Revision 10
FPIP-1; Fire Protection Plan, Organization, and Responsibilities; Revision 13.

1R06 Flood Protection
ONP-12; Acts of Nature; Revision 23

1R11 Licensed Operator Requalification
CAP01088080; Simulator Fidelity Issue on 2400VAC Bus Alignments; May 17, 2007
FP-T-SAT-80; Simulator Configuration Management; Revision 1
PL-OPS-SPE-069E; Palisades Training-Licensed Operator Requalification Training; Revision 0
Simulator Review Committee Meeting Minutes; February 12, 2007

1R12 Maintenance Effectiveness
CAP 01087255; Uncompleted Recommendation from Old Condition Report; April 19, 2007
Health Report HPI; April 20, 2007
System Health Improvement Plan: ESS/HPI; Revision 2; April 17, 2007
CAP Search “Waterhammer” and “ES3131" (2A Loop Injection Check valve) 1987- 2007

Completed Work Orders for Injection Loop Check Valves 1987-2007
CAP 01036851; V-24C, 1-2 D/ Ventilation Fan Failed to Start; June 23, 2006
CAP 01007419; MC-34L, DG Design Basis Accident/Normal Shutdown Load Sequencer Failure; December 14, 2005
K-6B Unavailability Data; May 2005 to April 2007
Executive Summary for System: SEQ; May 2, 2007
Executive Summary for System: DGV; May 4, 2007

1R13 Maintenance Risk Assessments and Emergent Work Evaluation
Risk Profile and Schedule for Workweek 0713
Risk Profile and Schedule for Workweek 0716
EC-8368 Damper Replacement Modification Briefing Outline; May 15, 2007
Risk Profile and Schedule for Workweek 0720
Profile and Schedule for Workweek 0724

1R15 Operability Evaluations
Operability Recommendation 01087255-01; Steam Voiding and Water Hammer in Safety Injection Lines; Revision 0
DWO-1; Operator's Daily/Weekly Items Modes 1, 2, 3, and 4; Revision 77
SO-9; Primary Coolant System Pressure Isolation Check Valves; May 7, 2006
Deviation Report Number (D) PAL-90-098; Gross Deformation of Pipe Supports GCI-H747 and GCI-H765; April 25, 1990
CAP 01087908; Documentation Lacking for Dissimilar Metals on P-7A Shaft; May 14, 2007
Operability Recommendation 01087830; Design Weakness on OC Relays for CCW and LPSI Pumps; May 10, 2007

1R19 Post-Maintenance Testing
MO7A-1; 1-1 EDG Monthly Surveillance; April 6, 2007
CAP 01087670; 152-111(B LPSI Pump Breaker), 150/151-111 X Phase Hi Drop-Out Relay Coil Degraded; May 5, 2007
WO 325334; LPSI P-67B Breaker; May 4, 2007
QO-15B; Low Pressure Safety Injection Pump Testing; May 5, 2007
CAP 01087726; P-8A and P-52C X-phase OC Relay Rating; May 7, 2007
CAP 01087830; Design Weakness on OC Relays for CCW and LPSI Pumps; May 10, 2007
QO-14A; P-7A IST Service Water Pump; Performed May 14, 2007
WO 00325417; P-7A Replace Top Line Shaft; May 14, 2007
SWS-E-5; SW Pump Motor Removal Maintenance and Replacement; Revision 12
SWS-M-1; SW Pumps P-7A Removal and Reinstallation; Revision 27
WO 00319909; Control Rod Drop Times; May 13, 2007
WO 00325417; P-7A, Replace Top Line Shaft; May 11, 2007
SWS-M-1; SW Pumps Removal, Inspection, and Reinstallation; Revision 27
RE-132; Diesel Generator 1-2 Load Reject; Revision 3
WO 00325488; QO-14A- P-7A; IST Service Water Pump; May 12, 2007
WO 00326458; MO-7A-2; Emergency Diesel Generator 1-2; June 24, 2007
WO 00326262; K-6B; Perform Transient Start; June 24, 2007
WO 00326457; RE-132 Diesel Generator 1-2 Load Reject; June 23, 2007

1R20 Outage Activities

Forced Outage Schedule; May 9, 2007
General Operating Procedure-9; Mode 3 > 535F to Mode 4 or Mode 5; Revision 25
PO-2; PCS Heatup/Cooldown Operations; Revision 3
NUMARC 91-06; Guidelines for Industry Actions to Assess Shutdown Management
CAP 01087758; Water Hammer in FW Htr E-5B to Heater Drain T-5 Drain Line; May 8, 2007
CAP 01087757; Plant Trip During Maintenance Activity; May 8, 2007
CAP 01087766; GOP Procedure Revisions in TSC Are Out-of-Date; May 8, 2007
CAP 01087798; NRC Post-trip AFAS Question; May 9, 2007
CAP 01087881; LT0751D Steam Generator E-50A Low Level Transmitter; May 11, 2007
CAP 01088020; Forced Outage Independent Risk Assessment Not Documented; May 17, 2007
Administrative Procedure 4.08; Post-Event Review Report for May 8, 2007
CAP 01087880; Document NRC Resident Observations During Walkdown; May 1, 2007
Palisades Critical Approach Form Completed for Start-up 302; May 10, 2007
EM-04-24; Palisades Critical Prediction and Critical Approach; Revision 7
GOP-3; Mode 3> 525F to Mode 2; Revision 22
10 CFR 50.59; Screen No. 06-0064; Document EA-CAP047706-01 - Palisades Reactor Head Drop Analysis; Revision 1
AR 00839733; CAP: NMC [Nuclear Management Company] Fleet Operating Experience - Reactor Head Drop Analyses; April 29, 2005
AR 01080926; CAP: Current Heavy Load Paths in FHS-24 Do Not Match Original Evaluated Load Paths; March 7, 2007
AR 01081248; CAP: Need to Revise RFL-D-16 and RFL-R-16 to Eliminate Potential Use of Planned Engineered Lifts; March 8, 2007
AR 01088237; PCR: RFL-R-16 Revision 1; May 23, 2007
AR 01088239; PCR: RFL-D-16 Revision 3; May 23, 2007
AR 01088464; CAP: Track Revision of EA-CAP047706-01 Reactor Head Drop Analysis; June 1, 2007
AR 01088466; OEER: Regulatory Issue Summary 2005-25 Supplement 1 - Clarification of Control of Heavy Loads/Applicability to Palisades Nuclear Plant; June 1, 2007
Consumers Power Company (CPC) Letter to NRC; Subject: Palisades Plant - Control of Heavy Loads (Generic Letter 81-07); July 6, 1981
CPC Letter to NRC; Subject: Palisades Plant - Control of Heavy Loads (Generic Letter 81-07); September 23, 1981
CPC Letter to NRC; Subject: Palisades Plant - Response to Draft TER C5257-439, Heavy Loads Palisades; February 18, 1983
CPC Letter to NRC; Subject: Palisades Plant - Palisades Heavy Loads Compliance Response to Draft TER C5506-379; August 15, 1983
CPC Letter to NRC; Subject: Palisades Plant - Control of Heavy Loads - Special Lifting Devices; September 12, 1983
Drawing C-149; Containment Sections - Sheet 2; Revision 5
Drawing C-157; Reactor Vessel Supports; Revision 6
Drawing C-158; Steam Generator Supports; Revision 7
Drawing C-159; Primary Coolant Pump Supports; Revision 5
Engineering Analysis EA-CAP047706-01; Reactor Head Drop Analysis; Revision 0

Engineering Analysis EA-EAR-99-0397-01; Load Limits for Containment Building Polar Crane L-1 and Reactor Head Lifting Device L-1/LD-1; Revision 0
Engineering Analysis EA-EAR-99-0397-01; Attachment B, Closure Head Lifting Rig; Revision 0
Engineering Analysis EA-EC7368-01; Radiological Consequences of a Beyond Design Basis Reactor Vessel Head Drop; Revision 0A
Engineering Analysis EA-EC7616-01; Reactor Vessel Head 15 Feet Drop - Consequences on Fuel Rod integrity; Revision 0
Engineering Analysis EA-EC7656-01; Reactor Vessel Head 31 Feet Drop - Consequences on Fuel Rod integrity; Revision 0
Engineering Analysis EA-FC-901-C01; Reactor Head Lifting Rig Shielding Evaluation; Revision 2
NRC Letter CPC; Subject: Control of Heavy Loads (Phase 1 Completion) - NUREG-0612 - Palisades Nuclear Generating Plant; November 9, 1983
Maintenance Procedure CLP-M-6; Inspection of Heavy Load Lift Devices; Revision 9
Maintenance Procedure FHS-M-24; Movement of Heavy Loads In the Containment Building Area; Rev. 20
Maintenance Procedure MSE-E-1; Overhead Crane Electrical Inspection; Revision 14
Maintenance Procedure MSM-M-13; Overhead Crane Mechanical Inspection; Revision 29
Maintenance Procedure RFL-D-16; Reactor Vessel Closure Head Removal; Revision 3
Maintenance Procedure RFL-R-16; Reactor Vessel Closure Head Installation; Revision 1
Vendor File M0073-0031; Dresser Crane and Hoist Operations: Service Manual - Cranes and Hoists
Work Order No. 26854; L-1/LD-1Visual Inspection PM (RV Head) - Reactor Vessel Closure Head Lift Device; Report dated June 29, 2006
Work Order No. 26859; Refueling Outage PMs on L-1, L-3, L-6, and L-906; Report dated October 16, 2006

1R22 Surveillance Testing

RO-128-2; Diesel Generator 1-2 24-hour Load Run; April 16, 2007
RI-69A; Subcooled Margin Monitor Channel A Pressure Surveillance; April 10, 2007
QO-1; Safety Injection System; Performed April 20, 2007
CAP 01087168; K-6B Cylinder Petcocks with Loose Nuts; April 17, 2007
CAP 01087239; RO-128-2 Test Equipment Hookup; April 19, 2007
QO-21; In-Service Testing Procedure - Auxiliary Feedwater Pumps for 8C AFW Pump; April 25, 2007
CAP 01087829; Condition of FW726 Not Fully Assessed for PMs; May 10, 2007
CAP 01087832; PM to Rebuild P-8C Deleted Without Fully Assessing Condition; May 10, 2007
IST Acceptance Criteria and Pump Differential Pressure (Pump 8C) for Last 36 Months (March 2004 - March 2007)
DWO-1; Technical Specification Procedure for Operator's Daily/weekly Items Modes 1, 2, 3 and 4; Revision 77
DWO-1 Performed April 28, 29, and 30, 2007
NMC Letter; Supplement to Inspection and Mitigation of Alloy 600/82/182 Pressurizer Butt-Welds; February 27, 2007
NRC Confirmatory Action Letter, CAL No. NRR 07-023; March 29, 2007

Drawing SKD-B-9613-1; Consumer Pressurizer; December 30, 1966
Drawing VEN-M1-L-A; Vessel Assembly and Final Machining Pressurizer; Revision 2
VCT and Pressurizer Level Trends April 27, 2007 through April 28, 2007
Steam Generator Tube Surveillance Report 2006 Refueling Outage; June 14, 2007

1R23 Temporary Modifications
EC 10617; Augmented Cooling for Service Water System to Compensate for Absence of Containment Air Cooler VHX-4; Revision 1
10 CFR 50.59 Screening 07-0098; Augmented Cooling for Service Water System to Compensate for Absence of Containment Air Cooler VHX-4; Revision 1
Design Basis Document DBD-7.08; Plant Protection Against Flooding; Revision 5
Drawing SK-EC-10617; Security Barrier for Screen House Roll-Up Door; Revision 0
Drawing M-89; Plumbing and Drainage Plans and Partial Plans Areas No. 2 - 4 - 9; Revision 13
NMC 50.59 Resource Manual; Revision 3

1EP2 Alert and Notification System (ANS) Evaluation
PAL Primary Warning System (PWS); Palisades Public Warning System Operating Procedure; Revisions 17 and 18
PAL PWS; Attachment 8; Monthly Siren Activity Reports; July 9, 2005 through April 14, 2007
Palisades Public Warning System Log Book; April 16, 2007
Technical Review of the Palisades Nuclear Power Plant Replacement PWS Final Design; December 19, 2002
Public Warning System Replacement Project Design Report; October 2002
AR 01081103; Backup Route Alert for Siren Failures Are Not Established; March 8, 2007

1EP3 Emergency Response Organization (ERO) Augmentation Testing
Emergency Preparedness Semiannual Augmentation Test Results; June 21, 2005 through December 12, 2006
Policy Number CP 0065; Emergency Response Organization; Revision 0
Procedure EI-2.2; Emergency Staff Augmentation; Revision 0
AR 01080780; Administrative Procedure 4.00 Could Allow Staffing Below Emergency Plan Limits; March 6, 2007
AR 01077859; ERO February 2007 Pager Test Deficiencies; February 19, 2007
AR 01070705; ERO January 2007 Pager Test Deficiency; January 9, 2007
AR 01059277; Possible Gap in Emergency Planning Training Qualifications; November 2, 2006

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies
2007-PL-FSA-0708; Palisades Focused Self-Assessment Report; conducted March 5, 2007 through March 9, 2007
2006-SAR-01018985; Palisades Focused Self-Assessment Report; conducted August 14, 2006 through August 18, 2006
Self-Assessment Report 01043854; NMC Snapshot Assessment; February 20, 2007
Nuclear Oversight Observation Report; Fleet EP Assessment (50.54(t)); March 20, 2007
Nuclear Oversight Observation Report; Fleet EP Assessment (50.54(t)); March 20, 2006
Palisades Fourth Quarter 2006 Integrated Drill Report; December 6, 2006

Palisades PALEX 2006 Integrated Drill Report; September 19, 2006
Palisades PRACTEX 2 Integrated Drill Report; September 6, 2006
Palisades PRACTEX 2006 Integrated Drill Report; August 16, 2006
Palisades Second Quarter 2006 Integrated Drill Report; June 6, 2006
AR 01082408; First Quarter EP Drill Control Issues; March 15, 2007
AR 01082132; General Emergency Not Declared During First Quarter EP Drill; March 14, 2007
AR 01045256; 2006 EP Focused Self-Assessment - Need Increased Diversity in EAL Progression; August 18, 2006

1EP6 Emergency Plan Drills

PL-OPS-SPE-069E; Training-Licensed Operator Requalification Training; Revision 0
CAP 01088064; Missed Drill and Exercise PI Opportunity; May 17, 2007
PALEX 2007; May 22 , 2007

2PS3 Radiological Environmental Monitoring Program and Radioactive Material Control Programs

Annual Radiological Environmental Operating Report for 2005; May 10, 2006
Annual Radiological Environmental Operating Report for 2006; May 10, 2007
ODCM; Offsite Dose Calculation Manual; Revision 20
CAP 01043090; Unacceptable Release of Material from M-18; August 4, 2006
CAP 01061035; Unacceptable Release of Material from M-18; November 9, 2006
CAP 01001908; Clean Sweep Items Alarming SAM-9; October 26, 2006
CAP 01012289; Radioactive Material Found During Prep Activities on F-54A; January 27, 2006
CAP 01033689; Radioactive Material Found in Carpet Adjacent to RCA; June 2, 2006
CAP 00888679; Contamination Control Practices; September 21, 2005
CAP 00891733; Contamination Monitoring for Items for Free Release; September 28, 2005
CAP 01034669; Grand Rapids Environmental Control Air Sample Not Received; June 8, 2006
CAP 01053121; Third Quarter On-site Environmental TLDs Anomalies; September 30, 2006
CAP 00883829; METT Tower Is Using Invalid Method for Calculating Average Wind Direction; September 6, 2006
CAP 01025707; ODCM LLD Not Met for Environmental Air Sample at Station No. 10; April 23, 2006
CAP 01088306; Mett Instrument Cal Records Not Filed in Timely Manner; May 24, 2007 (NRC Identified)
CR-PLP-2007-02457; Workers Noted in Overhead Prior to Survey Being Performed by Radiation Protection; June 12, 2007 (NRC Identified)
CR-PLP-2007–2456; Current Air Sampling System (REMP) May Result in Non-representative Sampling; June12, 2007; (NRC Identified)
Procedure No HP 10.10; Palisades Radiological Environmental Program Sample Collection and Shipment; Revision 9; July 6, 2005
Procedure No HP 10.10; Palisades Radiological Environmental Program Sample Collection and Shipment; Revision 10; May 16, 2007
Procedure No HP 10.11; Land Use Census; Revision 3; July 6, 2005

Snapshot Report; Radiological Environmental Monitoring Program and Radioactive Material Control Program; AR 01068908; May 10, 2007
Procedure No EM-33; Meteorological Monitoring System; Revision 0
Palisades Meteorological Monitoring Semiannual Data Reports: 01/01/05 - 06/30/05; 07/01/05 - 12/31/05; 01/01/06 - 06/30/06; 07/01/06 - 12/31/06

4OA1 Performance Indicator (PI) Verification

Nuclear Management Company Palisades Nuclear Plant Mitigating Systems Performance Index Basis Document; December 14, 2006
NRC Performance Indicator Alert and Notification System Reliability (EP-03) and Records for July 2006 through March 2007
NRC Performance Indicator for Emergency Response Organization Drill and Exercise Participation Records and Documents for July 2006 through March 2007
NRC PI Drill and Exercise Performance (EP-01) Records for July 2006 - March 2007
NRC PI HPSI System (MS-07) Records for July 2006 - March 2006
NRC Performance Indicator Heat Removal System (Auxiliary Feedwater) (MS-08) Records for July 2006 - March 2007
Selected Log Entries July 2006 through March 2007

4OA2 Problem Identification and Resolution

CAP 1079399; CV-0737 Auxiliary Feed P-8C Flow Control Bypass Failed Full Open; February 27, 2007
CAP 1078094; VOP-3031 in Close Proximity to CCW Piping; February 19, 2007
DRUM Maintenance; 1st Quarter 2007; April 12, 2007
DRUM Operations; 1st Quarter 2007; April 19, 2007
DRUM Emergency Planning; 1st Quarter 2007; April 30, 2007
Nuclear Oversight 1st Quarter 2007; Assessment Report for Palisades; April 5, 2007
Nuclear Oversight Observation Report # 2007-001-8-011; Fleet Conduct of Operations Assessment; March 28, 2007
Performance Assessment Review Board Meeting Minutes/Agenda for May 1 and May 8, 2007
CAP Search "Trend" for January 1 to May 4, 2007
RIA-1817 Long Term Response to CRDM Leakage and Fuel Failures; May 10, 2007
Human Performance Update, Operations; May 1, 2007
Site Performance Indicators March, April, May 2007
Operations Monthly Performance Report - March 2007; April 16, 2007
CAP 01087450; EI-1 Attachment 1 on CR Copy is Missing Procedure Number and Revision Number; April 27, 2007
O2C-PAL-2007-0021; Oversight Observation Checklist; May 7, 2007
CAP 01077244; Potential Trend in Critical SW Control Valve Condition; April 26, 2007
CAP 01080385; Documented That Valve CV-0821, 'A' CCW SW Heat Exchanger Outlet Temp Control Valve Will Not Close; March 4, 2007
CAP 01080837; RIA-1817 Containment Gas Radiation Monitoring in Warning Alarm Level; March 7, 2007
CAP 01073944; Apparent Trend in Leaks for Service Water Piping; April 30, 2007
CAP 01078379; Service Water Pump P-7A Minimum Shaft Diameter Evaluation; February 20, 2007
CAP 01088457; Collective Significance Evaluation Needed for SW; May 31, 2007

4OA3 Event Follow-up

NUMARC 91-06; Guidelines for Industry Actions to Assess Shutdown Management
CAP 01087758; Water Hammer in FW Htr E-5B to Heater Drain T-5 Drain Line; May 8, 2007
CAP 01087757; Plant Trip During Maintenance Activity; May 8, 2007
CAP 01087766; GOP Procedure Revisions in TSC are Out-of-Date; May 8, 2007
CAP 01087798; NRC Post-trip AFAS Question; May 9, 2007
CAP 01087881; LT0751D Steam Generator E-50A Low Level Transmitter Off; May 11, 2007
Event Notification 43351; Palisades 4 and 8 Hour Event Reports; May 8, 2007
WO 00325275; POI-0703 (FRV Position Indication) Failed to 0% Open; May 8, 2007
FP-G-DOC-03; Procedure Use and Adherence; Revision 1

4OA5 Other

Site Emergency Plan; Revision 15
EAL Basis; EAL Technical Basis Document; Revision 1
CAP01088454; DC Test Equipment Installed Without Fuse Protection; May 31, 2007
Maintenance Procedure EPS-E-9; Use of Portable Ground DC Ground Fault Detection System; Revision 5
AR01087867; ONP-25.2; Revision 22, Step 33.1; Requires Revision to Clarify That the Pressurizer Heaters' Temporary Modification Identified in Attachment 6 Is a Cold Shutdown Repair and Not a Hot Shutdown Repair; May 11, 2007
EOP Supplement 1, Page 1 of 5; Pressure Temperature Limit Curves; Revision 5
ONP-25.1; Fire Which Threatens Safety-Related Equipment; Revision 17
ONP-25.2; Alternate Safe Shutdown Procedure; Revision 22
PL-LOR-07B-002L; ONP-25.1 and ONP-25.2 Review; Revision 0
PL-LOR-07B-004S; ONP-25.1 and ONP-25.2 Scenario; Revision 0
Entergy Nuclear Training Report; LOR Feedback Summary Forms for Simulator Scenario PL-LOR-07B-004S - ONP-25.1 and ONP-25.2; Forms; 04/20 through 05/07/07
E-246, Sheet 1; Schematic Diagram SIRW Tank & Containment Sump Valves; Revision 22
E-246, Sheet 2; Schematic Diagram SIRW Tank & Containment Sump Valves; Revision 26
SOD-SI-01; Safety Injection, Containment System; Revision 2
SOD-SI-02; Safety Injection System; Revision 1
SOD-CVCS-02; Chemical & Volume Control System; Revision 1
Cycle 07B; LOR Weekly Schedule; Revision 3
LS05-83-05-057; Fire Protection Rule - Alternate Safe Shutdown Capability - Sections III.G.3 and III.L of Appendix R to 10 CFR 50 Palisades Plant SER; May 26, 1983
Apparent Cause Evaluation 01078887; Diesel Generator 1-2 Snubber 5-L Failure

LIST OF ACRONYMS USED

ADAMS	Agency-Wide Document and Management System
AFW	Auxiliary Feedwater
ANS	Alert and Notification System
AR	Action Request
CAP	Corrective Action Program
CCW	Component Cooling Water
CRDM	Control Rod Drive Mechanisms
CFR	Code of Federal Regulations
CR	Condition Report
CPC	Consumers Power Company
DRUM	Department Roll Up Meeting
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
ERO	Emergency Response Organization
FIN	Finding
FRV	Feed Regulating Valve
gpm	gallons per minute
HPSI	High Pressure Safety Injection
IMC	Inspection Manual Chapter
IP	Inspection Procedure
LER	Licensee Event Report
LPSI	Low Pressure Safety Injection
MSPI	Mitigating System Performance Index
NCV	Non-Cited Violation
NMC	Nuclear Management Company
NRC	Nuclear Regulatory Commission
OA	Other Activities
ODCM	Offsite Dose Calculation Manual
OpESS	NRC Operating Experience Smart Sample
PARS	Publicly Available Records
PCS	Primary Coolant System
PI	Performance Indicators
PWS	Primary Warning System
RCA	Radiologically Controlled Area
REMP	Radiological Environmental Monitoring Program
SAE	Site Area Emergency
SSC	System, Structure, or Component
SDP	Significance Determination Process
SIT	Safety Injection Tank
SW	Service Water
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Work Order