January 24, 2003

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

SUBJECT: PALISADES NUCLEAR GENERATING PLANT
NRC INSPECTION REPORT 50-255/02-09

Dear Mr. Cooper:

On December 28, 2002, the NRC completed an inspection at your Palisades Nuclear Generating Plant. The enclosed report documents the inspection findings which were discussed on January 7, 2003, with yourself and other members of your staff.

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

Based on the results of this inspection, we identified three issues of very low safety significance (Green) that were determined to involve violations of NRC requirements. However, because of the very low safety significance and because the issues were entered into your corrective action program, the NRC is treating these issues as Non-Cited Violations in accordance with Section VI.A.1 of the NRC' s Enforcement Policy.

If you deny these Non-Cited Violations, 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, 801 Warrenville Road, Lisle, IL 60532-4351; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Palisades facility.

Since the terrorist attacks on September 11, 2001, the NRC has issued two Orders (dated February 25, 2002, and January 7, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the February 25th Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) '02, and the remaining inspections are scheduled for

completion in CY '03. Additionally, table-top security drills were conducted at several licensees to evaluate the impact of expanded adversary characteristics and the ICMs on licensee protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For CY '03, the NRC will continue to monitor overall safeguards and security controls, conduct inspections, and resume force-on-force exercises at selected power plants. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Laura Collins, Acting Chief
Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 50-255/02-09

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DPR-20
Report No:	50-255/02-09(DRP)
Licensee:	Nuclear Management Company, LLC
Facility:	Palisades Nuclear Generating Plant
Location:	27780 Blue Star Memorial Highway Covert, MI 49043-9530
Dates:	September 29 through December 28, 2002
Inspectors:	J. Lennartz, Senior Resident Inspector R. Krsek, Resident Inspector R. Winter, Reactor Engineer C. Phillips, Senior Operations Engineer G. Larkin, Resident Inspector D. Nelson, Radiation Protection Inspector C. Osterholtz, Senior Resident Inspector T. Madeda, Physical Security Inspector S. Burgess, Senior Reactor Analyst
Approved by:	Laura Collins, Acting Chief Branch 6 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000255/02-09, Nuclear Management Company, LLC, on 09/29/2002 - 12/28/2002, Palisades Nuclear Generating Plant. Identification and Resolution of Problems.

This report covers a 3-month period of baseline resident inspections, an announced baseline inspection in radiation protection and an announced pre-inspection audit in physical protection. The inspections were conducted by resident inspectors, regional inspectors and a radiation specialist inspector. The pre-inspection audit was conducted by a regional based physical security inspector. Three Green findings with associated Non-Cited Violations (NCVs) were identified during the inspection. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process," (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after 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 3, dated July 2000.

A. Inspector Identified Findings

Cornerstone: Initiating Events

Green. The inspectors determined that a self-revealed Green finding was associated with a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," for the failure to rigorously evaluate industry operating experience information which resulted in inadequate preventive maintenance activities being developed for the 345 Kilo-Volt (KV) transmission lines that connect the plant and the switchyard. Consequently, on December 1, 2002, a connector holding a static wire on the 345 KV transmission line towers between the plant and the switchyard failed. As a result, the static line contacted one phase of the 345 KV lines as well as all three phases of the 345 KV Rear Bus in the switchyard which caused an automatic plant trip on loss of generator load and a loss of startup power.

This self-revealed finding was determined to be of very low safety significance by the significance determination process because: (1) the finding did not contribute to the likelihood of a Primary or Secondary system Loss of Coolant Accident initiator; (2) the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available; and (3) the finding did not increase the likelihood of a fire or internal/external flood. (Section 4OA2.2)

Cornerstone: Mitigating Systems

Green. The inspectors determined that a self-revealed Green finding was associated with a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," for the failure to adequately evaluate the root cause in 1992 of a leak that occurred on the instrument line for Safety Injection Tank T-82D. Consequently, past corrective actions were not adequate to prevent the leak from recurring on November 11, 2002. As a result, T-82D was rendered inoperable and unavailable to perform the intended safety function of injecting borated water to the reactor during a large break loss of coolant

accident. In addition, a NOED had to be issued to extend Technical Specification Limiting Condition 3.5.1, "Safety Injection Tanks," allowed outage time by 24 hours so that repairs could be completed to restore T-82D to an operable status without having to shut down the plant.

This self-revealed finding was determined to be of very low safety significance by the significance determination process because: (1) the safety injection tanks were only credited for large break loss of coolant accidents; and (2) the exposure time for the inoperable safety injection tank was less than 3 days. (Section 4OA5.1)

Cornerstone: Barrier Integrity

Green. The inspectors determined that a self-revealed Green finding was associated with a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," for the failure to promptly identify and correct problems regarding the operation of Mechanical Equipment Room Door-16, which resulted in the door failing in the open position of October 10, 2002.

This self-revealed finding was determined to be of very low safety significance by the significance determination process because the finding represented a degradation of only the radiological barrier function for the control room. (Section 4OA2.1)

B. Licensee Identified Findings

None.

REPORT DETAILS

A list of documents reviewed within each inspection area is included at the end of the report.

Summary of Plant Status

The plant was at full power for the majority of the inspection period with the following two exceptions:

- On November 11, 2002, operations personnel identified a non-isolable leak from a 3/4 inch instrument tap for Level Transmitter LT-0374 off the 12 inch Safety Injection Tank 82D main discharge piping. Consequently, Tank 82D was declared inoperable and plant power was reduced to approximately 60 percent on November 12, 2002, to conduct repairs to the instrument line. Repairs were successfully completed and plant power was subsequently escalated to full power on November 13, 2002. (This issue is discussed further in Section 4OA5.1 of this report.)

- On December 1, 2002, an automatic reactor trip occurred on main generator loss of load. All safety systems operated as designed to maintain the plant in a stable condition following the trip. The main generator tripped because a connector that held a static wire to the 345 KV transmission line towers failed and the static wire contacted the 345 KV lines. As a result, the main generator output breaker tripped on loss of load and the reactor protection system tripped the reactor. After the plant trip, station loads automatically transferred to startup power momentarily.

  However, startup power was lost approximately 2 seconds later when the static wire that was contacting the 345 KV lines overheated, separated at one section and fell across all three phases of the 345 KV Rear Bus in the switchyard causing a fault. Consequently, the switchyard breakers opened to clear the fault which resulted in a loss of Rear Bus and a resultant loss of startup power.

  As a result, primary coolant pumps, circulating water pumps, and condensate pumps lost power. Consequently, the primary system was on natural circulation cooling and secondary heat removal was maintained with the auxiliary feedwater system and atmospheric dump valves. The plant remained in this condition until the 345 KV Rear Bus and startup power were recovered on December 3, 2002, after which primary coolant pumps were started to establish forced circulation in the primary system.

  After the secondary systems were recovered, plant startup activities commenced on December 4, 2002. The main generator was synchronized to the grid on December 5th, and the plant was at full power on December 7, 2002. (This issue is discussed further in Sections 4OA2.2 and 4OA3.1 of this report.)

1. REACTOR SAFETY

Cornerstones: Initiating Event, Mitigating Systems, Barrier Integrity, Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

.1 Thunderstorm Warning With Forecasted High Wind Gusts

a. Inspection Scope

The inspectors reviewed the actions taken by operations personnel on October 4, 2002, after the site received a severe thunderstorm warning with possible wind gusts of 50 to 60 miles per hour. The inspectors conducted plant walkdowns to verify that actions as described in Off-Normal Procedure - 12, "Acts of Nature," were being accomplished to the extent possible for the pending high wind conditions. The inspectors also verified that the "Operators Risk Report," was updated to reflect the impact on plant risk for the pending severe thunderstorm and high wind condition, and verified that plant equipment was controlled to minimize plant risk to the extent possible.

b. Findings

No findings of significance were identified.

.2 Cold Weather Preparations

a. Inspection Scope

The inspectors reviewed plant procedures to protect risk significant systems from the onset of cold weather. The inspectors reviewed the Cold Weather Checklists performed on November 6, 18, and 19, 2002. The following systems were emphasized:

- Auxiliary Feedwater
- Emergency Diesel Generators
- Service Water

Additionally, on December 6, 2002, the inspectors toured portions of the plant with an operations representative to verify that the selected systems were appropriately protected.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Quarterly Equipment Alignment Walkdowns (71111.04Q)

a. Inspection Scope

The inspectors performed two partial walkdowns of the Switchyard "R" Bus and Auxiliary Feedwater Pump P-8C. The inspectors performed the walkdowns to verify proper system lineup while redundant plant equipment was out of service. For the systems walked down, the inspectors verified that power was available, that accessible equipment and components were appropriately aligned, and that no discrepancies existed which would impact the systems' function. Portions of the system alignment inspection included discussions and system walkdowns with operations and engineering personnel.

The inspectors also reviewed condition reports related to equipment alignment issues to verify that the problems were appropriately characterized.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Area Walkdowns (71111.05Q)

a. Inspection Scope

The inspectors toured the following six areas in which a fire could affect safety-related equipment:

- West Engineered Safeguards Room (Fire Area 28);
- Battery Rooms (Fire Area 11 & 12);
- East Mechanical Equipment Room (Fire Area 30);
- West Mechanical Equipment Room (Fire Area 31);
- Battery Room #1 (Fire Area 12); and
- Electrical Equipment Room (Fire Area 21)

The inspectors assessed the material condition of the passive fire protection features and verified that transient combustibles and ignition sources were appropriately controlled. Also, the inspectors reviewed documentation for randomly selected completed surveillances to verify the availability of the sprinkler fire suppression system, smoke detection system, and manual fire fighting equipment for these areas.

The inspectors also verified that the fire protection equipment that was installed and available in the fire areas corresponded with the equipment which was referenced in the applicable portions of the Final Safety Analysis Report, Section 9.6, "Fire Protection." Finally, the inspectors verified that compensatory actions were being implemented, as required, for designated Fire Areas where compensatory actions were needed.

In addition, the inspectors reviewed selected condition reports to verify that identified problems associated with fire protection were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

.2 Fire Drill (71111.05A)

a. Inspection Scope

The inspectors observed an unannounced fire drill on October 23, 2002. The drill included participation by two off-site fire departments which assisted the on-site fire brigade in fighting the simulated fire located in a pipe-way overhead structure between the feedwater purity building and the turbine building. The inspectors evaluated the fire brigade's readiness to fight fires which included the following attributes:

- required number of fire brigade members as specified in Fire Protection Implementing Procedure -3, "Plant Fire Brigade," reported to the scene in a timely manner;
- fire brigade member's ability to properly use protective clothing and self-contained breathing apparatus;
- appropriate amount and type of fire fighting equipment was brought to the fire scene, fire hoses were laid out without flow restrictions and enough fire hose was available to reach the fire hazard;
- fire brigade leader's ability to provide clear, thorough and effective directions to both the on-site fire brigade members and to personnel from the off-site departments;
- off-site fire department equipment's compatibility with on-site fire fighting equipment;
- ability to communicate between fire brigade members and the control room operators in an effective manner;
- fire brigade leaders ability to use fire fighting pre-plan strategies in an effective manner.

In addition, the inspectors verified that the pre-planned drill scenario was followed and that the drill objectives were met. The inspectors observed the post-drill critique to assess the licensee evaluators' ability to identify problems regarding the fire brigades ability and readiness to fight fires. The inspectors also reviewed condition reports to verify that problems identified during the post-drill critique were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors observed heat exchanger performance testing which utilized the periodic maintenance method for the jacket water and lube oil heat exchangers for the following:

- Emergency Diesel Generator 1-1 (Heat Exchangers E-22A and E-31A); and
- Emergency Diesel Generator 1-2 (Heat Exchangers E-22B and E-31B).

The inspectors verified the following items during the inspections:

- Tests conformed with the Licensee's Generic Letter 89-13 Program for Heat Exchanger Inspections;
- Inspection results were appropriately categorized against acceptance criteria and results were acceptable;
- Frequency of inspection was sufficient to detect degradation; and
- Conditions adverse to quality identified during the inspections were appropriately documented in the licensee's corrective action system.

Portions of the heat exchanger tube inspections were observed by the inspectors. In addition, the inspectors observed the cleaning of heat exchanger tubes and verified that the methods used to inspect and clean the heat exchanger were adequate. Additionally, the as-found results of the inspection and testing were verified to be appropriately dispositioned before the system was returned to service.

b. Findings

No findings of significance were identified

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

The inspectors observed licensed operator performance during a simulator training session on November 20, 2002. The inspectors assessed the licensed operator's ability to respond in accordance with applicable off-normal operating procedures and emergency operating procedures to the following plant equipment problems that were contained in the training scenario:

- pressurizer pressure safety channel failed low;
- primary coolant system inadvertent dilution;
- steam generator tube leak that subsequently resulted in a tube rupture; and
- failure of safety injection to automatically initiate.

The inspectors observed the Shift Supervisor execute the emergency implementing procedures in response to the simulated plant conditions. The inspectors verified that the Shift Supervisor classified the emergency condition, and notified local authorities and the NRC in an accurate and timely manner. The inspectors also observed the

post-scenario critique to assess the licensee evaluator's ability to identify deficient operator performance.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

The inspectors reviewed the licensee's maintenance effectiveness for planned and emergent issues associated with the Critical Service Water System which was designated as having high safety significance within the licensee's maintenance rule program.

The inspectors reviewed the licensee's maintenance rule performance indicators to verify that the system's status had been characterized in the appropriate category within the licensee's maintenance rule program. The inspectors reviewed work order histories and selected condition reports written against the system over the last 2 years to verify that maintenance and identified problems had been appropriately addressed. Completed work orders were reviewed to determine if there was an adverse trend in system performance that could be attributed to inappropriate work practices and to determine if there were any common cause issues that had not been addressed.

Further, the inspectors reviewed selected condition reports and associated maintenance rule evaluations to verify that the identified problems were appropriately characterized and were dispositioned in accordance with the licensee's maintenance rule program. The inspectors also verified that designated corrective actions were reasonable and had been implemented as scheduled.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed Operator's Risk Reports, Shift Supervisor logs, and daily maintenance schedules to verify that equipment necessary to minimize plant risk was operable or available as required during planned and emergent maintenance activities. The inspectors also conducted plant tours to verify that equipment necessary to minimize risk was available for use. The following seven activities were reviewed:

- Planned maintenance on Control Valve 3059, "High Pressure Safety Injection Discharge to Train 1," on October 9, 2002, and emergent maintenance on control room boundary Door-16, "Mechanical Equipment Room," on October 10-11, 2002;

- Planned outage on Switchyard 345 KV Front-Bus and Component Cooling Water Pump P-52C on October 15-17, 2002;
- Planned maintenance on Emergency Diesel Generator 1-2 on October 21-25, 2002;
- Planned maintenance on Emergency Diesel Generator Fuel Oil Transfer Pumps on November 15, 2002;
- Planned maintenance on Emergency Diesel Generator 1-1 on November 6-9, 2002;
- Planned outage on Switchyard 345 KV Rear-Bus on November 26, 2002; and
- Planned outage on component cooling water to the spent fuel pool cooling system on December 16-19, 2002.

The inspectors discussed plant configuration control for the maintenance activities with operations, maintenance and work control center staff to verify that work activities were appropriately controlled.

In addition, the inspectors reviewed select condition reports to verify that problems identified during the work activities were appropriately characterized and entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance Related to Non-Routine Plant Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors reviewed the plans, associated procedures and applicable work orders, and observed portions of the following four non-routine plant evolutions:

- transfer of water between the spent fuel pool and the safety injection refueling water storage tank on October 27, 2002, to validate the method as a contingent cooling mechanism for the spent fuel pool for upcoming planned maintenance;

- troubleshooting "D" channel pressurizer high pressure input to reactor protection system pressurizer high pressure and thermal margin low pressure trips on November 4, 2002;

- drain and subsequent fill of Safety Injection Tank 82D on November 11 and 12, 2002, to conduct emergent repairs to an unisolable leak from the level transmitter instrument line while at power; and

- reopening of Main Turbine Stop Valve No. 1 that had inadvertently failed closed on December 5, 2002, with the plant at 33 percent power.

Regarding the transfer of water between the spent fuel pool and the safety injection refueling water storage tank evolution, the inspectors verified that the plans contained appropriate contingency actions and that the procedure steps adequately controlled the

evolution. In addition, the inspectors verified that procedural actions and contingency plans were discussed during pre-evolution briefings.

For the troubleshooting activities on "D" channel pressurizer pressure input into the reactor protection system, the inspectors observed the pre-evolution brief to verify that potential problems and appropriate contingency actions were discussed. The inspectors also observed the troubleshooting activities by maintenance personnel in the control room to verify that the evolution was being appropriately controlled by the control room operators. The inspectors reviewed the associated work orders to verify that appropriate criteria was specified which the technicians could use to determine if a problem existed with the system components that were being analyzed.

Regarding the drain and subsequent fill of Safety Injection Tank 82D, the inspectors verified that the evolution was accomplished in accordance with Standard Operating Procedure -3, "Safety Injection and Shutdown Cooling System." The inspectors also verified that the as left condition for Safety Injection Tank 82D met the requirements of Technical Specification 3.5.1, "Safety Injection Tanks," surveillance requirements.

On December 6, 2002, the inspectors observed the pre-evolution brief and operator performance in the control room during the evolution to reopen Main Turbine Stop Valve No. 1 that inadvertently failed closed on December 5, 2002, when the plant was at 33 percent power. The inspectors also reviewed the procedure that was developed for the evolution. The inspectors verified that the operators completed the evolution in accordance with the developed procedure and that appropriate precautions, limitations and contingency actions were specified for the evolution. The inspectors also verified that the cause of the problem had been adequately addressed.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15Q)

a. Inspection Scope

The inspectors reviewed four operability assessments as documented in the associated condition reports for the following risk significant plant equipment:

- D/G Cooling Fan Damper D-28 (V-24C);
- Component Cooling Water Pump P-52A;
- High Pressure Air System; and
- Emergency Diesel Generator 1-2 Turbocharger.

The inspectors interviewed the cognizant engineers and reviewed the supporting documents to assess the adequacy of the operability assessments for the current plant Mode. The inspectors also reviewed the applicable sections of the Technical Specifications, Final Safety Analysis Report, and Design Basis Documents to verify that the operability assessments were technically adequate and that the components remained available, such that no unrecognized increase in plant risk had occurred.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors reviewed the operator challenges, operator workarounds, and control room deficiencies that were previously identified by licensee personnel to verify that the cumulative effects did not create significant adverse consequences regarding the reliability, availability and operation of accident mitigating systems. The inspectors also assessed the cumulative effects on the operators ability to implement abnormal and emergency response procedures to verify that the operators could respond to plant transients and accidents in a correct and timely manner.

The inspectors reviewed selected condition reports related to operator workarounds to verify that identified problems related to operator workarounds were entered into the corrective action program with the appropriate significance characterization. The inspectors also verified that identified corrective actions were reasonable and had been implemented as scheduled.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed (newly developed) Standard Operating Procedure 3, Section 7.5.11, “Safety Injection and Shutdown Cooling System, To Fill Safety Injection Tank and Outlet Piping Between the Check Valves with HPSI Pumps.” The procedure was written to fill Safety Injection Tank T-82D on November 13, 2002, after it was drained to repair a non-isolable leak from an instrument line. The inspectors reviewed the associated 10 CFR 50.59 screening evaluation to verify that licensee personnel adequately evaluated the new procedure with respect to the design function of the safety injection tanks. The inspectors also reviewed the associated piping diagram to verify that the flowpaths aligned by the procedure would not adversely impact the safety injection tank’s functional requirements during accident conditions.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors observed portions of post maintenance testing and reviewed documented testing activities following scheduled maintenance to determine whether the tests were performed as written. The inspectors also verified 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 control room staff. The following four post maintenance test activities were reviewed:

- Emergency Diesel Generator 1-1, October 24 and 25;
- Emergency Diesel Generator 1-2, November 8 and 9;
- Repair of Broken Weld on 3/4 inch line from Safety Injection Tank T-82D November 12 and 13; and
- Replacement of three component cooling water isolation valves to the spent fuel pool cooling heat exchangers, December 17 through 20.

The inspectors reviewed post maintenance testing criteria to verify that the test criteria was appropriate with respect to the scope of work performed and that the acceptance criteria were clear.

In addition, the inspectors reviewed the completed tests and procedures to verify that the tests adequately verified system operability. Documented test data was reviewed to verify that the data was complete and that the equipment met the procedure acceptance criteria, which demonstrated that the equipment was able to perform the intended safety functions.

Further, the inspectors reviewed condition reports regarding post maintenance testing activities to verify that identified problems were appropriately characterized.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed daily work schedules and toured the plant on December 2nd and 3rd 2002, to verify plant equipment that operations personnel had designated as protected was appropriately controlled to minimize risk while the plant was on natural circulation cooling following the December 1, 2002, reactor trip. The inspectors also observed the following plant startup activities in the control room:

- start of first two primary coolant pumps on December 3, 2002;
- reactor startup on December 4, 2002; and
- main generator synchronization to the grid on December 5, 2002.

The inspectors observed the above activities to verify that reactivity changes and plant startup activities were appropriately controlled in accordance with technical specifications and plant procedures.

In addition, the inspectors reviewed condition reports related to the maintenance outage and subsequent plant startup activities to verify that the identified problems were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the following five surveillance testing activities conducted on risk-significant plant equipment:

- Auxiliary Feedwater System;
- Transformer Deluge Systems Surveillance Test;
- 5-Year Containment Tendon Surveillance;
- Safety Injection; and
- Local Leak Rate Test for Inner and Outer Personnel Air Lock Door Seals.

The inspectors observed portions of the testing in the plant to verify that testing was conducted in accordance with prescribed procedures. The inspectors also reviewed the documented test data for the Technical Specification Surveillance Test procedures and the associated basis documents to verify that testing acceptance criteria were satisfied.

In addition, the inspectors reviewed applicable portions of Technical Specifications, the Final Safety Analysis Report and Design Basis Documents to verify that the surveillance tests adequately demonstrated that system components could perform designated safety functions.

Further, the inspectors reviewed selected condition reports regarding surveillance testing activities to verify that the identified corrective actions were reasonable and had been implemented as scheduled.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the modification documentation and associated 10 CFR 50.59 evaluation for the following three temporary plant modifications:

- 2002-22, Accept removal of static wire from running between the main power transformer and the switchyard;
- 2002-15, Jumper out pressure switch PS-1036B to allow Primary Coolant Pump Oil Lift Pump P-81B to operate independent of the AC Oil Lift Pump pressure switch; and
- 2002-10, Turbine Intercept, Reheat and Main Stop Valve Test Solenoid Isolation

In addition, the inspectors reviewed selected condition reports regarding temporary modifications to verify that identified problems were appropriately characterized.

The inspectors verified that the temporary modifications did not adversely impact other safety-related equipment and that the modifications were being controlled in accordance with Administrative Procedure 9.31, "Temporary Modification Control," requirements.

b. Findings

No findings of significance were identified.

1EP6 Emergency Plan Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed performance of emergency response personnel in the simulator control room and the technical support center, and reviewed event notification forms that were completed during a drill on December 11, 2002. The inspectors verified that emergency response personnel classified the event in an accurate and timely manner as prescribed in Emergency Implementing Procedure 1, "Emergency Classifications and Actions," and that required notifications to State and Local Police authorities, and the NRC were completed in an accurate and timely manner as prescribed in Emergency Implementing Procedure 3, "Communications and Notifications."

The inspectors also verified that the technical support center and operational support center on-site emergency facilities were activated within approximately 60 minutes after the Alert condition was classified as prescribed by the drill objectives.

The inspectors observed the post-drill critique in the Technical Support Center to verify that licensee evaluators adequately identified emergency response performance problems and reviewed the associated condition reports to verify that identified problems were appropriately characterized.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns

a. Inspection Scope

The inspectors reviewed the radiological conditions of work areas within radiation areas and high radiation areas in the radiologically restricted area to verify the adequacy of radiological boundaries and postings. This included walkdowns of high and locked high radiation area boundaries in the Auxiliary Building and the Spent Fuel Pool. The inspectors performed independent measurements of area radiation levels and reviewed associated licensee controls to determine if the controls (i.e., surveys, postings, and barricades) were adequate to meet the requirements of 10 CFR Part 20 and the licensee's Technical Specifications.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03)

.1 Identification of Radiological Monitors Associated With High/Very High Radiation Areas

a. Inspection Scope

The inspectors completed walkdowns and reviewed calibration records to verify the accuracy and operability of radiation monitoring instruments used for the protection of occupational workers. Instrumentation included area radiation monitors (ARMs), continuous air monitors (CAMs), portable survey meters, portal monitors, and electronic dosimeters.

The Final Safety Analysis Report (FSAR) was reviewed to identify those ARMs and CAMs that were associated with transient high and very high radiation areas. These monitors included, but were not limited to, the following:

- Fuel Pool Area Monitor;
- High Range Containment Monitor; and
- Containment Atmosphere Gas Monitor.

The inspectors performed a walkdown of selected ARMs and CAMs in order to verify that locations were as described in the FSAR.

b. Findings

No findings of significance were identified.

.2 Respiratory Protection - Self-Contained Breathing Apparatus

a. Inspection Scope

The inspectors reviewed the status and surveillance records for self-contained breathing apparatus that was located in various areas onsite, including those units reserved for fire brigade and control room personnel. In addition, the inspectors reviewed the licensee's training, mask fit, and medical qualification records to verify that applicable emergency response and control room personnel were currently trained and qualified in the use of self-contained breathing apparatus.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed self-assessments of the radiation monitoring instrumentation program, SCBA maintenance and user training, and the operation and calibration of the MGP Instruments CDM-21 Calibrator and DMC electronic dosimeters to evaluate the effectiveness of the self-assessment process to identify, characterize, and prioritize problems. The inspectors also reviewed corrective action documentation to verify that previous radiation monitoring and SCBA deficiencies were adequately addressed. The inspectors also reviewed the licensee's year 2002 condition reports covering radiological incidents involving personnel internal contamination events and radiological instrumentation to verify that the licensee could identify, track, and correct radiological problems in these areas.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Cornerstone: Physical Protection (PP)

1PP3 Response to Contingency Events (71130.03)

a. Inspection Scope

The inspectors reviewed the status of security operations and assessed licensee implementation of the protective measures in place as a result of the current, elevated threat environment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors verified that the data submitted by the licensee was accurate and complete for the following three Performance Indicators:

- Unplanned Power Changes;
- Reactor Coolant System Leakrate; and
- Occupational Exposure Control Effectiveness.

The inspectors reviewed control room logs, licensee monthly operating reports, and licensee's Incident Analysis System logs, to verify that the licensee had accurately reported the unplanned power changes performance indicator for October 2001 through October 2002.

Regarding the reactor coolant system leakrate performance indicator, the inspectors compared the data submitted to the NRC for the first three quarters of 2002 with the daily calculated leakrates documented in General Operating Procedure -13, Attachment 1, "Primary Coolant System Inventory Form."

For the Occupational Exposure Control Effectiveness performance indicator, the inspectors verified the licensee's assessment of its performance indicators for the previous four calendar quarters. No reportable elements were identified by the licensee for the 4th quarter of 2001 and the 1st, 2nd, and 3rd quarters of 2002. The inspectors reviewed 4th quarter 2001 and 1st, 2nd, and 3rd quarters of 2001 and 2002 condition reports to verify that there were no occurrences during those quarters.

Further, the inspectors verified that a condition report was generated at the appropriate significance level for an error that the inspectors identified in the reactor coolant system leakrate performance indicator data for May 2002 that was submitted to the NRC.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Failure of Mechanical Equipment Room Door 16

a. Inspection Scope

The inspectors reviewed the circumstances surrounding the emergent failure of Door-16, "Mechanical Equipment Room," on October 10, 2002, which rendered the control room boundary inoperable and placed the plant in a resultant 24 hour Technical Specification limiting condition for operation. The inspectors reviewed evaluations for condition reports that had been generated previously for Door-16 failures and assessed the identified corrective actions for effectiveness.

b. Findings

Introduction

The inspectors determined that a self-revealed Green finding was associated with a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," for the failure to promptly identify and correct problems regarding the operation of Mechanical Equipment Room Door-16. Consequently, on October 10, 2002, Door-16 failed in the open position which rendered the radiological barrier function for the control room inoperable.

Description

On October 10, 2002, a security officer was trapped inside the Mechanical Equipment Room for approximately 4 hours because Door-16 would not open. After licensee maintenance personnel subsequently opened Door-16 at 5:45 a.m., the door's lower locking pins failed in the closed position which prevented the door from being closed. Consequently, the control room boundary was inoperable which rendered both trains of control room ventilation filtration inoperable. As a result, an unplanned entry into Technical Specification 3.7.10.B.2 required that the control room boundary be restored to operable status within 24 hours.

Maintenance personnel disassembled the door and based on the "as found" conditions, the inspectors concluded that the door had been degrading for a long time. The brackets that hold the locking pins rigid to allow the opening mechanism to extend and retract the pins were loose for the two top and two bottom pins. One fastener in each of the top two brackets and one fastener in each of the bottom two brackets had come completely out and the other fasteners were loose. The loose brackets resulted in one

of the bottom two pins not being able to be retracted after the door was opened which also prevented the door from being closed.

Door-16 was subsequently repaired, satisfactorily tested to be functional and declared operable approximately 5 hours later and the technical specification limiting condition for operation was exited. The inspectors also determined that administrative requirements regarding minimum manning for security personnel were met while the one security officer was trapped inside the room. Therefore, there were no technical specification or minimum staffing requirements for security personnel violated during this emergent issue.

However, the inspectors noted that several condition reports had been generated in the recent past for problems experienced while operating Door-16. The following four condition reports had been generated since August 2002 regarding Door-16 problems:

- CAP031011, "Mechanical Equipment Room (Door 16) Failure," initiated on August 22, 2002;
- CAP031099, "Locked Inside Door-16 HVAC (Heating Ventilation and Air Conditioning) Area," initiated on August 29, 2002;
- CAP031121, "Inability to Open Control Room HVAC Door-16" initiated on September 1, 2002; and
- CAP031479, "Door-16 Control Room HVAC Door Stuck Closed," initiated on October 1, 2002.

Licensee personnel had completed condition evaluations for three of the above four condition reports prior to Door-16 failing on October 10, 2002. The inspectors noted that the condition evaluations for CAP031011 and CAP031121 were the same as the condition evaluation that was completed for CAP031099. For all three condition reports, the evaluation concluded that the door was not being operated properly in that licensee personnel were opening and closing the door with the locking pins not fully retracted as evidenced by scrape marks on the door sill. The evaluation further stated that improper operation of Door-16 was a theory which had not been proven and as a consequence the evaluation concluded that there was no known cause for the locking pins to not be fully retracted when opening and closing the door. However, no additional investigations had been done to either prove or disprove the theory that the door was being operated improperly. Therefore, the inspectors concluded that the evaluations completed for Condition Reports CAP031011 and CAP031121 were narrowly focused in that no additional investigations were conducted when the problem repeated.

The inspectors also concluded that corrective actions taken for the condition reports generated after the initially identified problem repeated were not appropriate. Specifically, the corrective actions focused only on training plant personnel on how to operate Door-16 properly including posting written instructions on the door.

The inspectors concluded that the narrowly focused evaluations and corrective actions for the three problems identified since August 2002, regarding Door-16 were missed opportunities for licensee personnel to identify the cause of the problem. Consequently, licensee personnel did not investigate or troubleshoot potential problems associated

with the operating mechanism until the issue was self-revealed on October 10, 2002, when Door-16 was opened and could not be closed.

The failure to promptly identify and fix the problems that plant personnel had experienced with operating Door-16 was considered a performance deficiency warranting a significance evaluation.

Analysis

The inspectors determined that this finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on April 29, 2002, because if left uncorrected it would become a more significant safety concern.

Specifically, after Door-16 failed in the open position, the control room boundary was rendered inoperable which rendered both trains of control room ventilation filtration inoperable. Consequently, following a postulated uncontrolled release of radioactivity, the control room ventilation filtration system could not provide the radiological barrier function for the control room operators. In addition, Technical Specification 3.7.10.B.2 required the control room boundary to be restored to an operable status within 24 hours and if not restored, then a plant shutdown to Mode 3 would be required within the next 6 hours.

The inspectors evaluated the finding using Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening. The inspectors determined that the barrier integrity cornerstone was adversely impacted and that the finding represented a degradation of only the radiological barrier function for the control room. Therefore, the finding was determined to be of very low safety significance (Green).

Enforcement

10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," requires in part that measures be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this, the evaluation and corrective actions for several condition reports that had been generated by licensee personnel regarding problems experienced with operating Door-16 were not effective in identifying or correcting the problems with operating Door-16. Consequently, on October 10, 2002, Door-16 failed in the open position which rendered the radiological barrier function for the control room inoperable.

This violation is associated with a self-revealing finding that is characterized by the significance determination process as having very low safety significance (Green) and is being treated as a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 50-255/02-09-01)

This issue was entered in the licensee's corrective action program as Condition Report CAP031618, "Door-16 Mechanical Equipment Room Failure Results in Technical Specification 3.7.10.A/B Entry."

.2 Root Cause Evaluation For Automatic Plant Trip on December 1, 2002

a. Inspection Scope

The inspectors reviewed the root cause evaluation for Condition Report CAP032289, "Automatic Reactor Trip and AFAS (Auxiliary Feedwater Actuation Signal) Actuation," that was generated following the reactor trip on December 1, 2002. The inspectors verified that the root cause evaluation contained the following attributes:

- consideration of extent of condition, generic implications, common cause and previous occurrences;
- root and contributing causes of the problem were identified;
- identified corrective actions were appropriately focused to correct the problem and were completed in a timely manner commensurate with the safety significance of the issue; and
- implementation of longer term corrective actions were reasonable.

On December 18, 2002, the inspectors observed the Corrective Action Review Board meeting that discussed the root cause evaluation to assess the effectiveness of the review board's members in evaluating completed root cause evaluations.

b. Findings

Introduction

The inspectors determined that a self-revealed Green finding was associated with a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," for the failure to rigorously evaluate operating experience which resulted in inadequate preventive maintenance activities being developed for the 345 Kilo-Volt (KV) transmission lines that connect the plant and the switchyard. Consequently, on December 1, 2002, a connector holding a static wire on the 345 KV transmission line towers between the plant and the switchyard failed, and the static line contacted one phase of the 345 KV lines and all three phases of the 345 KV Rear Bus in the switchyard which resulted in an automatic plant trip on loss of generator load and a loss of startup power.

Description

On December 1, 2002, at 9:54 p.m. an automatic reactor trip from 100 percent power occurred. The trip occurred when a static line on the 345 KV transmission line towers, which is used for lightning protection, fell and contacted one phase of the 345 KV lines that connected the main generator output to the switchyard. During the root cause evaluation, licensee personnel developed the following sequence of events:

- the static line hanger "dog-bone" that connected the static line to transmission line Tower Number 2 failed at the connection point to the tower. (For reference purposes, there were four towers that carried the transmission lines to the switchyard. Tower Number 4 was closest to the plant and Tower Number 1 was closest to the switchyard);

- after the static line released from Tower Number 2, the additional weight between Towers 1 and 3 caused the “dog-bone” to fail on Tower Number 1;

- with the two connectors failed, the static line sagged and contacted the “X” phase of the 345 KV transmission lines between Towers 2 and 3;

- the energy from the 345 KV line vaporized a section of the static line near Tower Number 3 and caused a loss of load (345 KV to ground) signal to trip the main generator output breaker and a resultant signal from the reactor protection system to trip the reactor;

- the trip signal initiated a fast transfer of non-safety related 4160 volt electrical busses A, B, G, and E from station power to startup power as designed;

- approximately 2 seconds after the plant trip signal, the severed static line fell to the ground from Towers 1 and 2 and contacted all three phases of the 345 KV Rear Bus in the switchyard;

- a fault to ground resulted when the static line contacted the 345 KV Rear Bus and the breakers in the switchyard opened, as designed, to clear the fault which resulted in the loss of Rear Bus;

- the loss of Rear Bus resulted in the loss of startup power to the plant which caused the subsequent loss of power to non-safety related 4160 Volt electrical busses A, B, G and E;

- loss of 4160 Volt electrical busses A, B, G and E resulted in the loss of several non-safety related plant components including the primary coolant pumps;

- with the loss of primary coolant pumps, the plant was on natural circulation cooling.

The plant remained stable throughout the event and all safety-related equipment operated as designed. The plant was maintained at or near normal operating pressure and temperature while on natural circulation cooling with heat removal being accomplished with the auxiliary feedwater system and the steam generator atmospheric dump valves. The plant remained on natural circulation cooling until two primary coolant pumps were started on December 3, 2002, after licensee personnel completed necessary troubleshooting and repairs. (The plant trip is also discussed in Section 4OA3.1 of this report)

The inspectors concluded that the root cause evaluation thoroughly evaluated the sequence of events and causes of the plant trip, and that immediate corrective actions taken and planned longer term corrective actions were reasonable.

However, the inspectors noted that the root cause evaluation determined that prior industry operating experience was not rigorously evaluated. The available operating experience indicated that the licensee needed to verify that plant was fully responsible

for switchyard high voltage grid equipment and that the equipment was fully incorporated into the preventive maintenance program.

Following the receipt and evaluation of the operating experience information, licensee personnel developed preventive maintenance inspections of the 345 KV lines, towers and transformers between the plant and the switchyard. The inspectors verified that the preventive maintenance activities had been accomplished as required.

However, licensee personnel failed to identify all the transmission line components that required routine preventive inspections to ensure system reliability. Therefore, no preventive maintenance activities were developed for the static line hanger "dog-bone" connectors. Consequently, the "dog-bone" connectors degraded during the 30-year service life undetected until the problem was self-revealed on December 1, 2002, when the two "dog-bone" connectors failed. Other "dog-bone" connectors that were inspected as part of the corrective actions were also found to be severely degraded. Therefore, the root cause evaluation concluded that the static line "dog-bone" connector failed because of inadequate preventive maintenance activities.

Licensee personnel replaced all the severely degraded "dog-bone" connectors on Towers 1 through 4 prior to plant restart. However, the failure to rigorously review available operating experience and ensure that adequate preventive maintenance for the 345 KV transmission lines between the plant and the switchyard was implemented was a licensee performance deficiency warranting a significance evaluation.

Analysis

The inspectors determined that this finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on April 29, 2002. The finding was related to the initiating events cornerstone attribute regarding procedure adequacy, and the cornerstone objective of limiting events that upset plant stability and challenge critical safety functions during power operations was affected.

Specifically, the inadequate preventive maintenance procedure associated with the 345 KV transmission line towers resulted in undetected degradation of the static line "dog-bone" connectors. Consequently, the connectors failed which resulted in a plant trip from 100 percent power and a loss of forced circulation cooling.

The inspectors evaluated the finding using Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening. The inspectors determined that the initiating events cornerstone was adversely impacted and that the finding:

- did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator;
- did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available; and
- did not increase the likelihood of a fire or a flood.

Therefore, the finding was determined to be of very low safety significance (Green).

Enforcement

10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," requires in part that measures be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this, the failure to rigorously evaluate available operating experience precluded the development of adequate preventive maintenance inspections of the static line hanger "dog-bone" connectors on the 345 KV transmission line towers that the plant was responsible for. Consequently, the "dog-bone" connectors degraded undetected until two failed which caused a plant trip from 100 percent power and a loss of forced circulation cooling.

This violation is associated with a self-revealed finding that is characterized by the significance determination process as having very low safety significance (Green) and is being treated as a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 50-255/02-09-02)

This issue was entered in the licensee's corrective action program as Condition Report CAP032289, "Automatic Reactor Trip and Auxiliary Feedwater Actuation Signal Actuation."

.3 Evaluation of Operating Experience Information

a. Inspection Scope

The inspectors reviewed the condition report evaluation for CIED0202545, "Evaluation of Prairie Island Non-Seismic Service Water Piping for Applicability." The inspectors verified the following attributes were adequately addressed in the evaluation:

- generic implications to Palisades and related extent of condition;
- classification and prioritization of the problem and associated resolution, as necessary, were commensurate with safety significance; and
- needed corrective actions were properly focused.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

.1 Automatic Plant Trip on December 1, 2002

a. Inspection Scope

The inspectors responded to the site after being notified that the plant had automatically tripped on loss of generator load at 9:54 p.m. on December 1, 2002. The inspectors walked down the control room panels noting system indications to verify that plant conditions were stable and that safety-related mitigation equipment was available. The

inspectors also verified that appropriate emergency operating procedures were being implemented.

The inspectors reviewed the post event review report and control room logs to verify that plant equipment operated as designed and that control room operators responded in accordance with applicable emergency operating procedures. The inspectors also reviewed the associated 4-hour non-emergency report, Event Notification Number 39414, to verify licensee personnel communicated the plant trip in an accurate and timely manner in accordance with 10 CFR 50.72.

On December 3, 2002, the inspectors observed the Management Review Board meeting regarding the plant trip to verify that licensee personnel understood the reason for the plant trip. The inspectors also observed the Special Restart Plant Review Committee meeting on December 4, 2002, to verify that previously identified plant equipment problems had been corrected to minimize plant risk and to ensure that no nuclear safety concerns existed prior to plant restart activities commenced.

The inspectors verified that the cause of the trip was understood and an NRC Region III Senior Reactor Analyst reviewed the trip from a risk perspective and concluded that the event was of very low risk. Also, the inspectors and the Senior Reactor Analyst verified that the trip did not meet the threshold to warrant a "Special Inspection" in accordance with Management Directive 8.3, "NRC Incident Investigation Program."

Further, the inspectors reviewed condition reports generated as a result of the plant trip to assess problem characterization and reviewed the root cause evaluation for the plant trip which is discussed further in Section 4OA2.2 of this report.

b. Findings

No findings of significance were identified.

.2 (Closed) Licensee Event Report (LER) 02-001: "Noncompliance With Technical Specification Requirements for Safety Injection Tank T-82D"

a. Inspection Scope

The inspectors reviewed Licensee Event Report 02-001, "Noncompliance With Technical Specification Requirements for Safety Injection Tank T-82D," to verify that the event was accurately described and to assess the appropriateness of identified corrective actions.

b. Findings

On November 11, 2002, with the plant operating at 100 percent power, operations personnel identified that the level in Safety Injection Tank T-82D was lowering slowly. During a subsequent containment entry, operations personnel identified a non-isolable leak on a weld from the 3/4 inch piping side of a sock-o-let which attached the lower sensing line for Level Transmitter LT-0374 to the main 12 inch downcomer from T-82D. Consequently, Safety Injection Tank T-82D was declared inoperable at 1:45 p.m. and

Technical Specification 3.5.1.B was entered which required that T-82D be returned to an operable status within 24 hours. Technical Specification 3.5.1 required four safety injection tanks to be operable in Modes 1 and 2. If T-82D was not returned to an operable status within the allowed 24 hours then additional actions per Technical Specification 3.5.1.C required the plant to be shut down to Mode 3 within the following 6 hours.

License personnel subsequently reduced plant power to 60 percent to conduct repairs. However, licensee personnel determined that repairs could not be completed within the Technical Specification allowed outage time of 24 hours. Therefore, on November 12, 2002, Nuclear Management Company, LLC, verbally requested and received enforcement discretion from the NRC to extend the allowed outage time of Technical Specification 3.5.1.B by 24 hours to 1:45 p.m. on November 13, 2002.

Consequently, Technical Specification 3.5.1.B allowed outage time of 24 hours was knowingly exceeded under an approved Notice of Enforcement Discretion which caused this event. The leak was subsequently repaired within the extended allowed time and T-82D was declared operable at 5:25 a.m. on November 13, 2002.

The inspectors concluded that the LER accurately described the event and therefore, this LER is closed.

However, the inspectors identified a finding of very low safety significance (Green) and associated Non-Cited Violation during a review of the root cause evaluation for the leak on Safety Injection Tank T-82D which are discussed in Section 4OA5.1 of this report.

4OA5 Other Activities

.1 (Closed) Unresolved Item 50-255/02-09-03: "Review of Notice of Enforcement Discretion (NOED) 02-3-059 For Nuclear Management Company LLC Regarding Palisades"

a. Inspection Scope (71152)

The inspectors reviewed the circumstances associated with issuing NOED 02-3-059 on November 12, 2002, to extend the allowed outage time for Technical Specification 3.5.1, "Safety Injection Tanks," for the inoperable Safety Injection Tank T-82D. The inspectors reviewed the basis for the licensee's NOED request and verified that licensee personnel complied with the compensatory actions noted in the NOED.

The inspectors also reviewed the root cause evaluation for the problem as documented in Condition Report CAP032073, "T-82D, Safety Injection Tank Level Instrument Line Leak," which required entry into the Technical Specification Limiting Condition for Operation on November 11, 2002, to determine if a failure to comply with regulatory requirements contributed to the need for enforcement discretion. The inspectors verified that the root cause evaluation adequately addressed the following attributes:

- consideration of extent of condition, generic implications, common cause and previous occurrences;

- root and contributing causes of the problem were identified;
- identified corrective actions were appropriately focused to correct the problem and were completed in a timely manner commensurate with the safety significance of the issue; and
- implementation of longer term corrective actions were reasonable.

On December 18, 2002, the inspectors also observed the Corrective Action Review Board meeting that discussed the root cause evaluation to assess the effectiveness of the review board's members in evaluating completed root cause evaluations.

b. Findings

Introduction

No findings of significance were identified during the inspectors' review of the basis of the NOED request, and the licensee's implementation of compensatory actions required by the NOED.

However, the inspectors determined that a self-revealed Green finding was associated with a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," for the failure to adequately evaluate the root cause in 1992 of a leak that occurred on the instrument line for Safety Injection Tank T-82D. Consequently, past corrective actions were not adequate to prevent the leak from recurring on November 11, 2002. As a result, T-82D was rendered inoperable and unavailable to perform the intended safety function of injecting borated water to the reactor during a large break loss of coolant accident. In addition, a NOED had to be issued to extend Technical Specification Limiting Condition 3.5.1, "Safety Injection Tanks," allowed outage time by 24 hours so that repairs could be completed to restore T-82D to an operable status without having to shut down the plant.

Description

On November 11, 2002, with the plant operating at 100 percent power, operations personnel identified that the level in Safety Injection Tank T-82D was lowering slowly. During a subsequent containment entry, operations personnel identified a non-isolable leak on a weld from the 3/4 inch piping side of a sock-o-let which attached the lower sensing line for Level Transmitter LT-0374 to the main 12 inch downcomer from T-82D. Consequently, Safety Injection Tank T-82D was declared inoperable at 1:45 p.m. and Technical Specification 3.5.1.B was entered which required that T-82D be returned to an operable status within 24 hours. Technical Specification 3.5.1 required four safety injection tanks to be operable in Modes 1 and 2. If T-82D was not returned to an operable status within the allowed 24 hours then additional actions per Technical Specification 3.5.1.C required the plant to be shut down to Mode 3 within the following 6 hours.

Plant power was subsequently reduced to 60 percent to conduct repairs. However, licensee personnel determined that repairs could not be completed within the Technical Specification allowed outage time of 24 hours. Therefore, on November 12, 2002, Nuclear Management Company, LLC, verbally requested and received enforcement

discretion from the NRC to extend the allowed outage time of Technical Specification 3.5.1.B by 24 hours to 1:45 p.m. on November 13, 2002. The leak was subsequently repaired within the extended allowed outage time and T-82D was declared operable at 5:25 a.m. on November 13, 2002.

The inspectors reviewed the licensee's NOED request to assess the qualitative and quantitative basis for the extension to Technical Specification 3.5.1.B allowed outage time. For the request, licensee personnel indicated that there was no net increase in risk by allowing the plant to operate for an additional 24 hours while repairs were completed to restore T-82D to an operable status and that the action did not result in an undue risk to the health and safety of the public.

The specific evaluation to determine plant risk was performed using the Palisades probabilistic risk assessment model that accounted for the current plant configuration and included the assumption that the low pressure safety injection system, the high pressure safety injection system and the remaining three safety injection tanks remained available. The results of the evaluation indicated an increase in the core damage probability, over the baseline configuration, of 4E-11 which was significantly less than the increase in core damage probability associated with a plant shut down which had been estimated to be 1E-06 for Palisades.

At the time that the NOED was granted, the inspectors verified that the low pressure safety injection system, the high pressure safety injection system and the remaining three safety injection tanks were operable. The inspectors concluded that the basis for the licensee's NOED request was adequately supported. Additionally, the inspectors determined that the compensatory actions noted in the NOED were reasonable and had been implemented as described.

The inspectors concluded that the root cause evaluation thoroughly addressed extent of condition, generic implications and common causes, and that reasonable root and contributing causes were identified. The inspectors also concluded that the completed corrective actions were appropriate and the schedule to complete longer term corrective actions was reasonable.

Regarding previous occurrences, the inspectors noted that the root cause evaluation discussed a leak on the same instrument line for Safety Injection Tank T-82D that had occurred in 1992. The evaluation conducted in 1992 concluded that the leak was due to a boric acid attack to a chromium-deficient area that made the joint vulnerable to corrosion. However, the root cause evaluation for the leak that occurred on November 11, 2002, identified several problems with the 1992 evaluation including the following:

- there was no apparent data that demonstrated a chromium deficiency existed; and
- no metallurgical examination was performed to confirm or refute the potential failure modes that had been identified.

Therefore, the evaluation for the leak that occurred on November 11, 2002, concluded that the root cause evaluation completed in 1992 for the previous leak was completed without adequate information and that the conclusions were incorrect.

In addition, the evaluation for the leak that occurred on November 11, 2002, concluded that the root cause of the leak, as well as the previous leak in 1992, was high cycle vibration imposed upon a susceptible piping configuration. This conclusion was based on additional information, including metallurgical examination data, that was obtained during the evaluation.

Consequently, the inspectors concluded that the NOED was necessitated by the failure to identify the cause of the leak that occurred in 1992. As a result, the associated corrective actions taken in 1992 were inadequate to prevent the leak from recurring which was considered a licensee performance deficiency that warranted a significance evaluation.

Analysis

The inspectors determined that this finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on April 29, 2002. The finding was related to the mitigation systems cornerstone attribute regarding equipment performance. The cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences was adversely affected by this finding.

Specifically, the inadequate root cause evaluation for the leak from T-82D level instrument line completed in 1992 precluded the implementation of adequate corrective actions. Consequently, the instrument line leak recurred on November 11, 2002, which rendered T-82D inoperable and unavailable to perform the intended safety function of injecting borated water to the reactor during a large break loss of coolant accident.

The inspectors evaluated the finding using Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening. The inspectors determined that the mitigation systems cornerstone was adversely impacted and that the finding:

- was not a design or qualification deficiency confirmed not to result in loss of function per Generic Letter 91-18; and
- did not represent an actual loss of the system's safety function.

However, the finding did represent an actual loss of safety function of a single train for greater than the Technical Specification allowed outage time. Therefore, the inspectors completed a Phase 2 analysis using Manual Chapter 0609, and the "Risk-Informed Inspection Notebook for Palisades Nuclear Plant," Revision 1, which determined the following:

- the safety injection tanks were only credited for large break loss of coolant accidents; and
- the exposure time for the inoperable safety injection tank was less than 3 days.

As a result, the initiating event likelihood as per "Risk-Informed Inspection Notebook for Palisades Nuclear Plant," Revision 1, Table 1, "Categories of Initiating Events for Palisades Power Plant," was very low. In addition, all other mitigating equipment for a large break loss of coolant accident was available when T-82D was inoperable.

Therefore, the finding was determined to be of very low safety significance (Green) in accordance with Manual Chapter 0609, Appendix A, Table 4, "Risk Significance Estimation Matrix."

Enforcement

10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," requires, in part, for significant conditions adverse to quality that measures shall be established to assure the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to this, licensee personnel failed to determine the cause of a leak in 1992 from the instrument line on Safety Injection Tank T-82D. Consequently, appropriate corrective actions were not taken and on November 11, 2002, the leak recurred.

This violation is associated with a self-revealed finding that is characterized by the significance determination process as having very low safety significance (Green) and is being treated as a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 50-255/02-09-04)

This issue was entered in the licensee's corrective action program as Condition Report CAP032073, "T-82D Level Instrument Line Leak."

Also, the inspectors had opened URI 50-255/02-09-03 to track the root cause evaluation for the problem that necessitated the NOED request, NOED approval basis, and verification activities. Because the root cause evaluation for the problem that required the NOED was reviewed and a finding of very low safety significance was identified with an associated Non-Cited Violation as noted above, this URI is closed.

.2 (Closed) Unresolved Item (URI) 50-255/02-03-01: "Inadequate Procedure for Tornado Mitigation"

In NRC Inspection Report 50-255/02-03, Section 1R21.b.1, NRC inspectors documented an apparent violation of Technical Specification 5.4.1, which involved an inadequate emergency operating procedure (EOP). Based on information available during the inspection, the inspectors determined that the EOP for supplying auxiliary feedwater from backup water sources could not be completed by operators in a timely manner to mitigate certain tornado events. During the inspection, licensee personnel estimated that it would take approximately 1 hour to align and vent the backup system to supply the auxiliary feedwater system if the condensate storage tank was lost due to a tornado. Estimated times had to be provided since licensee personnel had not previously validated the time necessary to complete the actions.

At the end of the inspection, this issue was characterized as a finding that had a credible impact on safety, in that performing the EOP as written would have resulted in a lack of

timely restoration of auxiliary feedwater and a loss of all core cooling during certain tornado events. Specifically, the inspectors concluded, based on available information, that backup water sources would not be able to be aligned prior to losing the steam generators as a heat sink for a postulated tornado that resulted in the loss of the condensate storage tank and the safety injection refueling water storage tank.

However, the safety significance of the finding was unresolved pending NRC determination of the risk involved which would include an analysis of: (1) the probability of a tornado striking the plant and causing a loss of the condensate storage tank, safety injection and refueling water tank, and offsite power; and (2) the credit to be given for certain unproceduralized operator recovery actions.

To determine the risk involved, the inspectors and an NRC Region III Senior Risk Analyst reviewed the following additional information that licensee personnel had completed in response to this issue:

- Evaluation of Condition Report CPAL0201930, "Impact to Performance Time Limit Not Validated in Emergency Operating Procedure Revision";
- Engineering Analysis EA-SGK-02-001, "Evaluation of the Impact of a Loss of Condensate Storage Tank on the Auxiliary Feedwater Pumps; and
- Engineering Analysis EA-PSA-Tornado-02-07, "Potential Core Damage Impact Due to a Tornado."

The condition report evaluation for CPAL0201930 included a validated timeline to align and vent the backup systems to supply the auxiliary feedwater system. The validation concluded that it would take approximately 23 minutes to align and vent either the service water backup to supply Auxiliary Feedwater Pump P-8C or to align and vent the fire protection backup to supply Auxiliary Feedwater Pumps P-8A and P-8B.

Consequently, the resultant time to complete initial emergency operating procedure actions and to align and vent a backup system for auxiliary feedwater could be accomplished within approximately 43 minutes. Therefore, the evaluation subsequently concluded that a backup system could be aligned and vented to supply auxiliary feedwater prior to the time at which the steam generators would be lost as a heat sink.

Engineering Analysis EA-SGK-02-001, concluded that venting would not be required when aligning the service water system or fire protection system as backup sources to supply auxiliary feedwater. Therefore, the time to align a backup supply to the auxiliary feedwater system if the condensate storage tank was lost from a tornado would be reduced further.

In addition, Engineering Analysis EA-PSA-Tornado-02-07, used the Palisades Probabilistic Safety Assessment to assess the potential impact on the core damage frequency for a postulated tornado at Palisades. The analysis concluded that the calculated core damage frequency was 8.7E-7 per year which was low risk.

Based on reviewing the new information provided by licensee personnel in response to this issue, the inspectors and the Senior Reactor Analyst concluded that this finding was of minor significance. Therefore, URI 50-255/02-03-01 is closed.

.3 Completion of Appendix A to TI 2515/148, Revision 1

The inspectors completed the pre-inspection audit for interim compensatory measures at nuclear power plants, dated September 13, 2002.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. D. Cooper and other members of licensee management on January 7, 2003. 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

The following Interim Exit Meetings were conducted:

- Radiation Protection inspection with Mr. D. Malone on November 21, 2002.
- Safeguards pre-inspection audit with Mr. B. Rowland on November 22, 2002.

KEY POINTS OF CONTACT

Licensee
D. Cooper, Site Vice President
P. Harden, Director, Engineering
N. Haskell, Nuclear Oversight Manager
G.W. Hettel, Manager, Maintenance and Construction
L. Lahti, Licensing Manager
D. G. Malone, Supervisor, Regulatory Assurance
D. J. Malone, General Plant Manager
G. Packard, Operations Manager
E. Weinkam, Director Regulatory and Strategic Issues
R. Remus, Assistant Plant Manager
B. Rowland, Security Manager
P. Russell, Manager Performance Improvement

NRC
J. Eads, Project Manager, NRR
J. Creed, Branch Chief, Safeguards

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-255/02-09-01	NCV	Failure to promptly identify and correct problems regarding the operation of Mechanical Equipment Room Door-16
50-255/02-09-02	NCV	Failure to rigorously evaluate industry operating experience information which resulted in inadequate preventive maintenance activities being developed for the 345 KV transmission lines that connect the plant with the switchyard
50-255/02-09-03	URI	Review of Notice of Enforcement Discretion (NOED) 02-3-059 For Nuclear Management Company, LLC, Regarding Palisades
50-255/02-09-04	NCV	Failure to adequately evaluate the root cause of a leak in 1992 on the instrument line for Safety Injection Tank T-82D which precluded adequate corrective actions to prevent repetition

Closed

50-255/02-09-01	NCV	Failure to promptly identify and correct problems regarding the operation of Mechanical Equipment Room Door-16
50-255/02-09-02	NCV	Failure to rigorously evaluate industry operating experience information which resulted in inadequate preventive maintenance activities being developed for the 345 KV transmission lines that connect the plant with the switchyard
50-255/02-09-03	URI	Review of Notice of Enforcement Discretion (NOED) 02-3-059 For Nuclear Management Company, LLC, Regarding Palisades
50-255/02-09- 04	NCV	Failure to adequately evaluate the root cause of a leak in 1992 on the instrument line for Safety Injection Tank T-82D which precluded adequate corrective actions to prevent repetition
50-255/02-03-01	URI	Inadequate Procedure for Tornado Mitigation
50-255/02-001	LER	Noncompliance With Technical Specification Requirements for Safety Injection Tank T-82D

LIST OF ACRONYMS USED

AA	Access Authorization
ARM	Area Radiation Monitor
CAM	Continuous Air Monitor
CBOP	Continuous Behavior Observation Program
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
FSAR	Final Safety Analysis Report
HSAS	Homeland Security Advisory System
LER	Licensee Event Report
NCV	Non-Cited Violation
NMC	Nuclear Management Company
NOED	Notice of Enforcement Discretion
NRC	Nuclear Regulatory Commission
OHS	Office of Homeland Security
RCS	Reactor Coolant System
RIS	Regulatory Information Summary
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SM&CS	System Maintenance and Construction Services

LIST OF DOCUMENTS REVIEWED

1R01 Adverse Weather Protection

Plant Procedures

ONP-12	Off-Normal Procedure, Acts of Nature	Revision 17
SOP-23	Plant Heating System	Revision 17
SOP-23, Attachment 8	Cold Weather Checklist	Revision 17
SOP-23, Attachment 9	Cold Weather Checklist - Electrical	Revision 16

Miscellaneous Documents

	Murray and Trettel Storm Warning	October 4, 2002
Design Basis Document 1.02	Service Water System	Revision 6
Final Safety Analysis Report Sections 2.5.1, 8.4, 9.1, 9.7, 9.8, 5.9.4	General Climatology of Palisades Plant Area, Emergency Power Sources, Service Water System, Auxiliary Feedwater System, HVAC System, and Turbine Building and Intake Structure	Revision 23
Technical Specifications and Bases for LCO 3.7.8	Service Water System	Amendment 199

1R04 Equipment Alignment

Plant Procedures

AP-4.00	Operations Organization, Responsibilities, and Conduct	Revision 23
AP-4.02	Control of Equipment	Revision 18

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP032053	Improper Storage of Ladders at Station Nos. 8 and 51 in West Engineered Safeguards Room
CAP032055	High Pressure Safety Injection Pump P-66A Seal Cooling heat Exchanger Missing Bolt

1R05 Fire Protection

Plant Procedures

FP-MS-1	Fire Protection Check Sheet - Monthly Inspection and Testing of Fire Doors for Fire Areas 21, 28	Revision 2
FPSP-SI-1	Data Sheet for Alarm Bells and Ionization Smoke Detectors for Fire Areas 28, 30, 31	Revision 2
FPSP-RP-11	Fire Barrier Penetration Seal/Conduit Seal Inspection Form for Fire Areas 7, 21, 28, 30, 31	Revision 4
FPSP-SO-2	Safety-Related Fire Door Data Sheet for Fire Areas 7, 28	Revision 0
ONP-12	Off-Normal Procedure - Acts of Nature	Revision 17
AP-4.02	Administrative Procedure - Control of Equipment	Revision 18
ONP-25.1	Off-Normal Procedure - Fire Which Threatens Safety-Related Equipment	Revision 11
ONP25.2	Off-Normal Procedure - Alternate Safe Shutdown Procedure	Revision 17
FP-MS-1	Fire Protection Check Sheet Monthly Inspection and Testing of Fire Doors	Revision 2
FPSP-MO-1, Attachment 2	Fire Suppression Water System Valve Alignment Verification Checkoff Sheet	Revision 2
FPSP-MO-2, Attachment 2	Fire Hose Reel Station and Fire Hose Rack Station Checkoff Sheet	Revision 0
FPSP-AO-2, Attachment 2	Fire Suppression Water System Fire Valve Operation Data Sheet	Revision 3
FPIP-6	Fire Suppression Training	Revision 9
FPIP-3	Plant Fire Brigade	Revision 8
FPSP-RO-9, Attachment 10	Electrical Equipment Room #725 Sprinkler Head Locations	Revision 0

Miscellaneous Documents

EA-PSSA-00-001	Palisades Plant Post Fire Safe Shutdown Summary Report, for Fire Areas 12, 28	Revision 1
Palisades Plant Fire Hazards Analysis	Analysis for Fire Areas 28	Revision 4

Palisades Plant Fire Hazards Analysis	Analysis for Fire Areas 11 & 12	Revision 4
BTP ASB 9.5-1	U.S. NRC Branch Technical Position 9.5-1 - Guidelines for Fire Protection for Nuclear Power Plants	Revision 1
	Consumer Power Company - List of Changes and Response to Appendix A to Branch Technical Position APCSB 9.5-1 and Regulatory Guides 1.78 and 1.101	Revision 2 August 24, 1996
FSAR 9.6	Final Safety Analysis Report, Section 9.6 - Fire Protection	Revision 23
	Scenario and objectives, and the post-drill critique for unannounced fire drill on October 23, 2002	

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP031809	Security Response to Fire May Have Adverse Safety Repercussions
CAP031910	Evaluate Process to Account for Offsite Emergency Responders After Response
CAP032065	NRC Questions With Regard to Safeguards Equipment - NRC Safeguards Walkdown
CAP032369	Insulation Material not Properly Categorized Leading to Missed Combustible Loading

1R07 Heat Sink Performance

EPS-M-15	Diesel Generator 1-2 - Refueling Frequency Maintenance	Revision 2
EPS-M-14	Diesel Generator 1-1 - Refueling Frequency Maintenance	Revision 3
EAR-99-0270	Gasket Material/Size Change for Lube Oil and Jacket Water Heat Exchanger K-6A/B	
WO 24212951	K-6A, Perform Selected Portions of EPS-M-14	
MI-17022	ALCO Bulletin - Type CP and CPR Heat exchangers	November 1963
EM-09-16	Heat Exchanger Condition Assessment Program	Revision 2

	Palisades Nuclear Plant - Raw Water Corrosion Report - Operational Cycle 14 and 1999 Refueling Outage	Revision 0
	Palisades Nuclear Plant - Raw Water Corrosion Report - Operational Cycle 15 and 2001 Refueling Outage	Revision 0
GL 89-13	Generic Letter 89-13 - Service Water System Problems Affecting Safety-Related Equipment	
PPAC EPS162	Predetermined and Periodic Activity Control - K-6A, Perform Selected Portions EPS-M-14	
PPAC EPS038	Predetermined and Periodic Activity Control - K-6A, Perform Selected Portions EPS-M-14	

Condition Reports Reviewed to Assess Problem Identification Characterization

CAP032018	Inadequate Documentation of Heat Exchanger Condition
CAP031990	Improper Flange Gaskets Installed
CAP031991	Tubes Blocked in E-22A (Emergency Diesel Generator 1-1/K-6A Jacket Water Cooler)
CAP031992	Tube Blocked in E-31A (Emergency Diesel Generator 1-1/K-6A Lube Oil Cooler)
CAP032048	Configuration of 1-1 Emergency Diesel Generator Heat Exchanger E-22A End Plat Gasket Differs From Intended Design

1R11 Licensed Operator Requalification

SPE-25	Simulator Performance Exam	Revision 4
EI-1, Attachment 1	Site Emergency Plan Classification	Revision 40

1R12 Maintenance Effectiveness

	Critical Service Water Maintenance Rule Scoping Document and Associated Maintenance Rule Performance Indicators	Revision 2
	Critical Service Water System Health Assessments	July 31, 2002
EM - 20	Performance Monitoring Program	Revision 9
EM - 25	Maintenance Rule Program	Revision 4

Condition Reports Reviewed to Assess Maintenance Rule Evaluations

CPAL0201493	Vibration Data Indicates Early Stage Fault in the New P-7CMotor Thrust Bearing	
CPAL0201692	During Spare Motor Rebuild, Old Lower Radial Bearing Shows Signs of Significant Thrust Loads	

Miscellaneous Documents

EAR-2002-0027	CV-0873 is Prone To Binding in The Closed Position Due to SILT Deposition	Revision 6
Work Order 24113994	Rebuild Service Water Pump P-7C Motor	
Work Oder 24810555	Rebuild Service Water Pump P-7A Motor	

Condition Reports Reviewed to Assess Problem Identification Characterization

CPAL0201493	Vibration Data Indicates Early Stage Fault in the New P-7CMotor Thrust Bearing	
CPAL0002725	Service Water Pump P-7A Would Not Start From Control Room	
CAP031774	Maintenance Procedure Deficiency	

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

Plant Procedures

Admin. 4.02	Administrative Procedure 4.02 - Control of Equipment	Revision 18

Miscellaneous Documents

	Operator's Risk Reports, Shift Supervisor Log Entries, and Daily Work Schedules during outage on the Switchyard 345 KV "F" Bus concurrent with a planned outage on Component Cooling Water Pump P-52C	October 15, 2002, through October 18, 2002
	Operator's Risk Reports, Shift Supervisor Log Entries, and Daily Work Schedules during outage on Emergency Diesel Generator 1-2	October 20-25, 2002
	Operator's Risk Reports, Shift Supervisor Log Entries, and Daily Work Schedules during outage on Emergency Diesel Generator 1-1	November 6-9, 2002

	Operator's Risk Reports, Shift Supervisor Log Entries, and Daily Work Schedules for planned maintenance on fuel oil transfer pumps	November 14-15, 2002
	Operator's Risk Reports, Shift Supervisor Log Entries, and Daily Work Schedules for planned maintenance on High Pressure Safety Injection Control Valve 3059, and for emergent maintenance on Door-16, "Mechanical Equipment Room"	October 9, 2002; and October 10-11, 2002
	Operator's Risk Report, Shift Supervisor Log Entries, and Daily Work Schedule during the outage on switchyard 345 KV "R" Bus	November 26, 2002
	Operator's Risk Report, Shift Supervisor Log Entries, and Daily Work Schedule during the component cooling water outage to spent fuel pool cooling	December 16-19, 2002

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP032561	Small Amount of Seat Material Missing From MV-CC184
CAP032569	Containment Sump Level Rises Unexpectedly
CAP032568	FI-0974, Vacuum Degasifier Pump Seal Water Cooler E-67 Fails on Restoration of CCW

1R14 Non-Routine Plant Evolutions and Events

Plant Procedures

SFPO-3, Attachment 1	Contingency Actions	Revision 6
SOP 3, Section 7.5.11	Standard Operating Procedure - Safety Injection and Shutdown Cooling System, To Fill Safety Injection Tank and Outlet Piping Between the Check Valves with HPSI Pumps	Revision 49
SOP 8, Attachment 2, Step 1.4.4	Main Turbine and Generating Systems	Revision 57

Miscellaneous Documents

	Primary Plant Computer data on spent fuel pool temperature for October 25 - 28, 2002	

24213939	Work Order, Pressurizer pressure safety injection channel circuit 4 power supply	
24213895	Work Order, Pressurizer vapor phase signal converter	
	Control room log entries, November 11-13, 2002	

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP032382	Shorted Conductor Causes Turbine Stop Valve #1 to Close Unexpectedly	
CAP032379	#1 Stop Valve on Turbine Closes	

1R15 Operability Evaluations

CPAL0201922	Found D/G Cooling Fan Damper D-28 (V-24C) Resting on Critical Service Water Piping	
CPAL0201632	Possible Wrong Coupling Installed on P-52A	
CAP031434	Seismic Qualification of Turbine Building HP Air X-tie to Safeguards Not Documented	
CAP032041	Diesel Generator Turbo Charger Bolts Do Not Meet Required Specifications	
CAP031995	½" x 1 ½" Bolt missing on Flange Which Connects Turbocharger to Exhaust Pipe	

Miscellaneous Documents

Work Request 296114	Replace Coupling Hub	August 1, 2002
FSAR Chapter 9.3	Component Cooling System	Revision 23

1R16 Operator Workarounds

Plant Procedures

AP 4.12	Administrative Procedure - Operator Work-Around Program	Revision 0

Operator Work-Around / Challenge Identification and Disposition Forms

01-620C	Energizing Preferred AC bus Y-30 and Y-40 from an inverter	Revision 0
01-200WA	Redundant means of supplying fuel oil to the diesel generators during emergency conditions	Revision 0
01-010WA	CCW containment isolation valves	Revision 0

01-210WA	Switchgear exhaust fan V-47 must be manually secured if Control Room Ventilation is in emergency mode	Revision 0
01-680C	FIC-0306 (SDC Flow Controller) does not have an automatic function	Revision 0
01-530C	Temperature control valves for the CCW Heat Exchangers are under-sized to control CCW temperatures during high temperature loading conditions	Revision 0
01-590C	Spent fuel transfer tube gate installation	Revision 0
01-610C	CCW Heat Exchangers (E-54A/B) are under sized	Revision 0

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP031928	Benchmarking Trip Reveals Gap in Operation's Performance of Aggregate Assessment Factor
CAP031931	Push Buttons Stick When Pushed on PIC 0101A/B

Condition Reports Reviewed to Assess Corrective Actions

CPAL9902017	Closure of Y30 Breaker #11 Caused Failure of Inverter ED-08
CPAL990275	Inadvertent Actuation of Y30 Breaker 11

1R17 Permanent Plant Modifications

SOP 3, Section 7.5.11	Standard Operating Procedure - Safety Injection and Shutdown Cooling System, To Fill Safety Injection Tank and Outlet Piping Between the Check Valves with HPSI Pumps	Revision 49
SDR-02-1134	50.59 Screen, Safety Injection and Shutdown Cooling System	
IN 96-31	NRC Information Notice - Cross-Tied Safety Injection Accumulators	
M-203, Sheet 1	Piping and Instrument Diagram, Safety Injection, Containment Spray and Shutdown Cooling	Revision 46

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP032083	Procedure Revision to Fill Safety Injection Tank T-82D Required Modification

1R19 Post Maintenance Testing

Plant Procedures

AP 5.19	Post Maintenance Testing	Revision 11
EPS-M-15	Diesel Generator 1-2 - Refueling Frequency Maintenance	Revision 2
SOP-22	Emergency Diesel Generators	Revision 33
MO-7A-2	Emergency Diesel Generator 1-2	Revision 54
EM-09-14	Attachment 1 - VT-2 Examination Checklist	Revision 4
MO-7A-1	Emergency Diesel Generator 1-1	Revision 56

Work Orders

WO24113941	K-6B, Perform Selected Portions of EPS-M-15	October 21, 2002
WO24214020	Safety Injection Tank T-82D; Broken Weld on 3/4" Line from Safety Injection Tank 12-inch Discharge Piping to Manual Valve MV-ES3157 Which is Unisolable and associated FME Area Material Control and Accountability Log	November 13, 2002
WO24211460	CK-DE 419, West Starting Air to K-6A Governor Check	November 7, 2002
WO24214010	EDG 1-1 Output Breaker 152-107	November 8, 2002
WO24212951	K-6A, Perform Selected Portions of EPS-M-14	November 7, 2002
WO24210690	Replace Valve MV-CC184, Valve Leaks By	December 17, 2002
WO24210560	Replace Valve MV-CC923	December 18, 2002
WO24110645	Replace Valve MV-CC117, Will Not Fully Close	December 20, 2002

Miscellaneous Documents

DBD-5.01	Design Basis Document - Diesel Engine and Auxiliary Systems	Revision 4
DBD-5.03	Design Basis Document - Emergency Diesel Generator Performance Criteria	Revision 6

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP031832	MO-7A-2, EDG 1-2 Monthly Surveillance Test Acceptance Criteria Not Met
CAP031836	Acceptance Criteria Not Specified In Surveillance Procedure MO-7A-2

CAP032047	Diesel Generator 1-1 Output Breaker Did Not Close During Test Start	
CAP032035	Gasket on 1-1 Diesel Generator Turbo Charger Exhaust Appears to Be Broken/Leaking	
CAP031801	Diesel 1-2 PT Drawer Left Open After Planned Maintenance	
CAP031799	Tech Spec Test MO-33 Aborted	
CAP032418	Inconsistent Record Keeping for FME Areas	

1R20 Refueling and Other Outage Activities

Plant Procedures

GOP-3	Mode 3 to Mode 2	Revision 17
GOP-4	Mode 2 to Mode 1	Revision 15

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP032329	Ineffective Communications Between PAL & System Control Delayed Switching	
CAP032366	Main Generator Frequency Meter Providing Inaccurate Readings	

1R22 Surveillance Testing

Completed Technical Specification Surveillance Tests

FT-2	Containment Building Post-Tension System	Revision 11
QI-39	Auxiliary Feedwater Actuation System Logic Test, November 5, 2002	Revision 0
QO-1	Safety Injection System, November 15, 2002	Revision 47
DWO-13	Local Leak Rate Tests For Inner and Outer Personnel Air Lock Door Seals	Revision 15
RO-32	Containment Penetrations - Local Leak Rate Test	Revision 9

Miscellaneous Documents

FT-2	Technical Specification Surveillance Test Basis Document - Containment Building Post-Tension System	Revision 11
NUREG-0820	Systematic Evaluation Plan	October 1982

QO-1	Technical Specification Surveillance Test Basis Document - Safety Injection System	Revision 3
E-17, Sheet 4	Logic Diagram, Safety Injection Actuation	Revision 16

Condition Reports Reviewed to Assess Corrective Actions

CPAL0202444	Procedure Step Inadvertently Deleted From Surveillance Test Section 6.0 Acceptance Criteria	‘
CPAL0103717	“C” Sensor Channel AFAS System Loss of Power	
CPAL0202691	FOGG B Module “S/G Delta-P A< B Failure	
CPAL9902698	AFAS/FOGG Panel +12 VDC Input Power Supply Design Deficiency	
CAP030948	Auto test function not operating on Auxiliary Feedwater Actuation system	
CPAL0202444	Procedure Step Inadvertently Deleted From Surveillance Test Section 6.0 Acceptance Criteria	

1R23 Temporary Plant Modifications

Plant Procedures

SOP-1	Primary Coolant System	Revision 50
ARP-5	Primary Coolant Pump Steam Generator and Rod Drives Scheme EK-09 (C-12)	Revision 64
AP-9.31	Temporary Modification Control	Revision 19
AP-3.07	10 CFR 50.59 and 72.48 Reviews	Revision13
E-609, sheet 23	Connection Diagram 125 VDC MCC D20 Unit #23 DC Oil Lift Pump P-81B	Revision 5
E-184	Schematic Diagram Primary Coolant Pumps DC Oil Lift Pumps	Revision 8
WO 24212006	Install TM-2002-010 to Disconnect Test Solenoid for Moisture Separator Reheater Valve SV-0535	June 15, 2002
E-602, Sheet 2A	Connection Diagram Turbine and Auxiliaries Terminal Boxes T22, T51, T52, T53, T54 & T60	Revision 1
E-121, Sheets 22-24	Schematic Diagrams Turbine Control	Revision 1

Temporary Modification Packages

TM 2002-015	Jumper to Allow DC Lift Pump P-81B to Operate Independent of the AC Oil Lift Pump Pressure Switch due to DC Ground on the Circuit	August 6, 2002
TM-2002-010	Isolate Power to the Turbine Reheat and Intercept Valves due to Short to Ground on the Neutral Wire of the Test Solenoid Valves	June 2, 2002
TM-2002-022	To Accept the Section of 345KV Transmission Line (North Line, Running between the Main Power Transformer and the Switchyard) without the Static Wire on Top of it.	December 3, 2002

Condition Reports Reviewed To Assess Problem Identification Characterization

C-PAL-0202321	Wiring to Solenoid Valve 0540, #2 Intercept Valve Found Swapped	June 14, 2002
C-PAL-0202320	Spurious Closures and Re-openings of CV-0540, #2 Intercept Valve From Moisture Separator Reheater E-9A to "A" Low Pressure Turbine	June 14, 2002

1E06 Emergency Plan Drill Evaluation

Plant Procedures

EI-1	Emergency Classifications and Actions	Revision 40
EI-3	Communications and Notifications	Revision 19

Miscellaneous Documents

	Scope and Objectives, Fourth Quarter Drill	December 11, 2002
	Sequence of Events, Fourth Quarter Drill	December 11, 2002
	Completed event notification forms, plant message numbers 1 through 7	December 11, 2002

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP032440	PALEX Drill Critique Item: TSC to NRC Communications Not Adequately Staffed
CAP032441	TSC Engineering Computer Configuration
CAP032442	Could Not Hear Drill Announcements - SE Corner of Support Building, 2nd Floor
CAP032444	Emergency Drill Communications Within Engineering and Maintenance

CAP032445	Wrong Procedure Revision in Simulator for Emergency Planning Drill	
CAP032446	RP Communication Between OSC and TSC Can Be Improved	
CAP032551	Equipment Issues During the Fourth Quarter EP Training Drill	
CAP032479	Van Buren County Used Outdated Emergency Notification Forms During Drill	

2OS3 Radiation Monitoring Instrumentation

RI-86B-9	Fuel Pool Area Monitor RIA-5709 Calibration	Revision 4
RI-86G	High Range Containment Monitor Calibration	Revision 8
RR-9M	Containment Atmosphere Gas Monitor RIA-1817 Calibration	Revision 2
Admin 1.16	Respiratory Protection Program	Revision 0
HP 7.1	Health Physics Portable Instrumentation Program	Revision 12
HP 7.5	Self-Contained Breathing Apparatus (SCBA) Survivair Mark-2 Model 9842	Revision 4
HP 7.6	Inspection and Testing of the Survivair (SCBA) Breathing Air Cylinders	Revision 6
HP 9.13	Eberline Model RO-2/RO-2A and Model RO-20 Portable Ion Chambers	Revision 9
HP 9.15	Operation and Calibration of the Eberline Model 6112 Teletector and Xetec Model 330A Telescan	Revision 9
HP 9.21	Ludlum Model 177 Ratemeter	Revision 5
HP 9.45	Operational and Functional Checks of Health Physics Portable Instruments	Revision 4
HP 9.67	Operation and Calibration of the MGP Instruments CDM-21 Calibrator and DMC Electronic Dosimeters	Revision 10
HP 9.77	Operation and Calibration of the Eberline Model AMS-4	Revision 11
RIA-I-9	Area Monitor Functional Check	Revision 2
MI-6	Area Monitor Operational Check	Revision 7

2002-33	Self-Assessment Report, Radiation Monitoring Instrument Program	November 8, 2002
2002-33	Self-Assessment Report, SCBA Maintenance and User Training	November 8, 2002
Self-Assessment Report, HP 9.67	Operation and Calibration of the MGP Instruments CDM-21 Calibrator and DMC Electronic Dosimeters"	
Certificate Of Calibration	Eberline Model AMS-4, SN 120	October 24, 2002
Certificate Of Calibration	Eberline Model 6112 Teletector, CIN 66902	September 19, 2002
Certificate Of Calibration	PCM-1B, SN 21679	October 21, 2002
Certificate Of Calibration	Xetec Model 330A Telescan, CIN 45280	January 30, 2002
Certificate Of Calibration	Eberline Model RO-2, CIN 5222	October 21, 2002
	Database Printouts for Training, Medical Exams, and Fit Testings Records	November 20, 2002
Condition Reports		
CPAL0103467	Frisker Failure Contributed to the Release of Contamination to a Clean Area	October 30, 2001
CPAL0200359	Failure of Worker's Electronic Dosimeter to Record Dose in a High Radiation Area	January 24, 2002
CAP016520	Ion Chamber Reads Low by a Factor of Ten	May 3, 2002
CAP030735	Radiation Safety Instrument Logsheet not Completed Consistently	November 30, 2002

3PP Physical Protection

Interim Compensatory Measures Order Validation File

4OA1 Performance Indicator Verification

Reactor coolant system identified leak rate performance indicator data submitted to the NRC by licensee personnel for the first three quarters of 2002

GOP-13, Attachment 1	PCS Inventory Forms - calculated reactor coolant system leak rates completed daily for the first three quarters of 2002	Revision 15

Condition Reports Reviewed To Assess Corrective Actions

CAP031806	Incorrect Data Reported on May 2002 NRC Performance Indicator BI-02

4OA2 Identification and Resolution of Problems

Condition Reports Reviewed to Assess Corrective Actions

CIED0202545	TIA 2001-02 Prairie Island Non-Seismic Service Water Piping (Evaluation attached to CAP 029041)	July 7, 2002

Condition Reports Reviewed to Assess Root Cause Evaluation and Corrective Actions

CAP032289	Automatic Reactor Trip and AFAS Actuation

Condition Reports Reviewed to Assess Condition Evaluation and Corrective Actions

CAP031618	Door 16 Mechanical Equipment Room Failure Results in TS 3.7.10 A/B Entry
CAP031479	Door 16 Stuck Closed
CAP031099	Locked Inside Door 16 HVAC Area
CAP031121	Inability to Open Control Room HVAC Door 16
CAP031011	Mechanical Equipment Room Door 16 Failure

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP032576	Missed Opportunity to See “Dog-Bone” Failure Coming for the Static Line

Miscellaneous Documents

FSAR Chapter 9.1	Service Water System	Revision 23
TS 3.7.10	Technical Specification, Control Room Ventilation Filtration	

4OA3 Event Follow-up

Miscellaneous Documents

	Post Event Review Report	December 1, 2002

EN #39414	Emergency Notification To Regulatory Agencies, 10 CFR 50.72, 4-hour Non-Emergency Report, for reactor protection system actuation	December 2, 2002
LCO 3.8.1	Technical Specification Limiting Condition For Operation, AC Sources Operating	Amendment 189
LCO 3.4.5	Technical Specification Limiting Condition For Operation, PCS Loops Mode 3	Amendment 189
EOP-1	Emergency Operating Procedure-1, Standard Post Trip Actions	Revision 12
EOP-8	Emergency Operating Procedure-8, Loss of Offsite Power/Forced Circulation Recovery	Revision 13
SOER 99-1	Significant Operating Experience Report, Loss of Grid	December 27, 1999

Condition Reports Reviewed To Assess Characterization of Identified Problems

CAP032289	Automatic Reactor Trip and AFAS Actuation
CAP032270	During R Bus Restoration, Open Indicator on 252-302 Failed To Light
CAP032272	Dual Indication of MOD-24R2 Disconnect During Restoration of R Bus
CAP032273	27R4 Kirk Key Locking Wheel Broke
CAP032293	CV-0782, Steam Generator E-50A Atmospheric Steam Dump Valve Failed To Indicate Closed
CAP032291	Pressurizer Spray Valve CV-1057 Did Not Close During Plant Transient
CAP032294	Control Rod Drive Mechanism #20 Low Limit Light Did Not Illuminate as Expected
CAP032296	High Pressure Seal Oil Backup Pump 24 Did Not Auto Start
CAP032299	RV-2006 Lifted Several Times Due To Sluggish Backpressure Regulator Control
CAP032312	POS-780 Indicates Improperly
CAP032350	On-shift C&RP Personnel Not Informed of Plant Shutdown

4OA5 Other

Miscellaneous Documents

	Request For Enforcement Discretion - Safety Injection Tanks	November 13, 2002
	Unplanned Plant Derate / LCO or Forced Outage Response Action Item List	November 12, 2002
LCO 3.5.1	Technical Specification Limiting Condition for Operation 3.5.1, Safety Injection Tanks and associated basis	Amendment 191
	Notice of Enforcement Discretion for Nuclear Management Company LLC Regarding Palisades (NOED 02-3-059)	November 15, 2002
	EOP Validation Form for EOP Supplement 31, “Supply AFW Pumps From Alternate Sources”	June 11, 2002
EA-PSA-Tornado-02-07	Engineering Analysis, “Potential Core Damage Impact Due to a Tornado”	June 21, 2002
EA-SGK-02-001	Engineering Analysis, “Evaluation of the Impact of a Loss of Condensate Storage Tank on the Auxiliary Feedwater Pumps”	June 21, 2002

Condition Reports Reviewed To Assess Problem Identification Characterization

CAP032088	Violation of Technical Specification 3.5.1.B, Safety Injection Tanks
CAP032066	T-82D Safety Injection Tank Lowering Level Trend
CAP032073	T-82D, SIT, Level Instrument Line Leak
CAP032074	Leakage Documented in CAP032073 Has Contacted Other Plant Components

Condition Reports Reviewed To Assess Corrective Actions

CPAL0201930	Impact to Performance Time Limit Not Validated in Emergency Operating Procedure Revision

Condition Report Reviewed To Assess Root Cause Evaluation

CAP032073	T-82D, Level Instrument Line Leak