January 22, 2004

Mr. Daniel J. Malone
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 05000255/2003008

Dear Mr. Malone:

On December 31, 2003, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Generating Plant. The enclosed report documents the inspection findings which were discussed on January 9, 2004, with you 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, two findings of very low safety significance (Green) were identified, which were determined to involve violations of NRC requirements. However, because these findings were of very low safety significance and because the findings have been entered into your corrective action program, the NRC is treating these violations as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, 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 NRC Resident Inspector at the Palisades facility.

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/

Eric R. Duncan, Chief
Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 05000255/2003008
w/Attachment: Supplemental Information

cc w/encl: J. Cowan, Executive Vice President
and Chief Nuclear Officer
R. Fenech, Senior Vice President, Nuclear
Fossil and Hydro Operations
D. Cooper, Senior Vice President - Group Operations
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DPR-20
Report No:	050000255/2003008
Licensee:	Nuclear Management Company, LLC
Facility:	Palisades Nuclear Generating Plant
Location:	27780 Blue Star Memorial Highway Covert, MI 49043-9530
Dates:	October 1 through December 31, 2003
Inspectors:	J. Lennartz, Senior Resident Inspector M. Garza, Resident Inspector R. Alexander, Radiation Specialist A. Dunlop, Reactor Engineer R. Jickling, Emergency Preparedness Analyst
Approved by:	Eric R. Duncan, Chief Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000255/2003008; 10/01/2003 - 12/31/2003; Palisades Nuclear Generating Plant; Equipment Availability, Reliability and Functional Capability (71111.EP).

This report covers a 3-month period of baseline resident inspections, two announced baseline inspections in radiation protection, an announced heat sink performance inspection and a routine baseline emergency preparedness inspection. The inspections were conducted by resident inspectors, a regional inspector, a radiation specialist inspector, and an emergency preparedness analyst. Two 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: Mitigating Systems

- Green. A finding of very low safety significance was self-revealed when High Pressure Safety Injection Pump P-66B Subcooling Valve CV-3070 failed to stroke open during surveillance testing. Licensee personnel improperly installed a flow control valve in the operating air system which contributed to the valve failing to stroke open. The finding was more than minor because the availability and capability of High Pressure Safety Injection Pump P-66B was adversely affected. The finding was of very low safety significance because there was not an actual loss of safety function for High Pressure Safety Injection Pump P-66B for greater than the Technical Specification allowed outage time.

  Corrective actions to address this issue included reinstalling the flow control valve in the proper direction, testing CV-3070 during a mid-surveillance cycle stroke test, and generating a work order to inspect the CV-3070 valve internals at the earliest opportunity. One Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified. (Section 1REP)

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance was self-revealed when the Containment Spray Pump P-54C inboard motor bearing failed on August 21, 2003. Following a scheduled oil change on the motor bearing, the bearing housing drain plug was also replaced and enough oil was lost during this drain plug replacement to uncover the bearing; however, the vent on the oiler had been plugged when the pump was painted in June 2002 which resulted in an erroneous level indication in the oiler for the bearing housing. Consequently, the operator did not add sufficient oil through the oiler to the bearing housing after the drain plug was replaced. As a result, the inboard motor bearing was inadequately lubricated which caused the bearing to fail when Containment

Spray Pump P-54C was started. This finding was more than minor because if left uncorrected, it would become a more significant safety concern. Specifically, the painted vent hole on the motor bearing oiler resulted in erroneous oil level indication and prevented the oiler from adding oil to the bearing housing when the level decreased. Consequently, an inadequately lubricated bearing would not be detected until the bearing failed. The finding was of very low safety significance because it did not represent an actual reduction of the atmospheric pressure control function of the reactor containment.

Corrective actions to address this issue included clearing the vent hole on the bearing oiler, verifying that the oiler vent holes on other safety-related pump motors were not painted over and replacing the inboard motor bearing on Containment Spray Pump P-54C. One Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified. (Section 1REP)

B. <u>Licensee Identified Findings</u>

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 operated at full power during the inspection period with the following exception:

- On November 8, 2003, power was reduced to 85 percent to conduct scheduled turbine valve testing. During these activities, Heater Drain Pump P-10B unexpectedly tripped due to low level in Moisture Separator and Heater Drain Tank T-5. Site personnel subsequently identified that T-5 Level Control Valve CV-0608 was not operating properly. A trip of one heater drain pump with power at 85 percent did not require any mitigating actions.

  On November 9, 2003, during emergent maintenance on Moisture Separator Reheater Stop Valve CV-0537, control room operators noted that Tank T-5 level was lowering again. As a result, Heater Drain Pump P-10A tripped. Operators subsequently stabilized power at 72 percent.

  After the second heater drain pump tripped, operations personnel identified that the discharge check valve on Heater Drain Pump P-10A was not fully seated and repairs were required. While completing necessary repairs to the discharge check valve, Heater Drain Pump P-10B was restarted on November 10, 2003, and power was increased to 90 percent.

  Following repairs, Heater Drain Pump P-10A was returned to service and the plant returned to full power on November 13, 2003.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Cold Weather Preparations

a. Inspection Scope

The inspectors reviewed the site's Cold Weather Checklists that were completed from October through November 2003 to assess the actions taken to prepare for the onset of cold weather. The inspectors also performed walkdowns to verify the physical condition of weather protection features for risk significant systems and components.

The inspectors reviewed selected condition reports related to cold weather preparation problems and verified that identified problems were entered into the corrective action

program with the appropriate significance characterization and that planned and completed corrective actions were appropriate.

b. Findings

No findings of significance were identified.

.2 Entry into Off-Normal Procedure Because of High Winds

a. Inspection Scope

The inspectors assessed the actions taken for one emergent adverse weather condition. On November 12, 2003, operations personnel entered Off-Normal Procedure-12, "Acts of Nature," after the control room received a weather warning regarding sustained wind speeds of 40 miles per hour and wind gusts to 50 miles per hour. The inspectors verified that the actions specified in Off-Normal Procedure-12 were being accomplished to the extent possible for this emergent adverse weather condition. Off-Normal Procedure-12 was exited on November 13, 2003, after the high winds diminished.

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 equipment alignment walkdowns to verify that the following systems were properly aligned:

- Instrument Air Compressors C-2A and C-2C
- Control Room Heating, Ventilation and Air Conditioning Train 'B'

For these systems, the inspectors verified that power was available, that accessible equipment and components were appropriately aligned, and that no discrepancies existed which would impact system function.

The inspectors also reviewed selected condition reports related to equipment alignment problems and verified that identified problems were entered into the corrective action program with the appropriate significance characterization and that planned and completed corrective actions were appropriate.

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:

- Battery Room #1 (Fire Area 12)
- Electrical Equipment Room (Fire Area 21)
- East Engineered Safeguards Room (Fire Area 10)
- West Mechanical Equipment Room (Fire Area 31)
- East Mechanical Equipment Room (Fire Area 30)
- Auxiliary Building Level 590 Corridor (Fire Area 13)

The inspectors verified that transient combustibles and ignition sources were appropriately controlled, and assessed the material condition of fire suppression systems, manual fire fighting equipment, smoke detection systems, and fire barriers. The inspectors also reviewed documentation for completed surveillances to verify that fire protection equipment and fire barriers were tested as required to ensure availability.

The inspectors verified that the installed fire protection equipment in the fire areas corresponded with the equipment which was referenced in the applicable portions of the Updated Final Safety Analysis Report, Section 9.6, “Fire Protection.”

The inspectors reviewed selected condition reports related to fire protection problems and verified that identified problems were entered into the corrective action program with the appropriate significance characterization and that planned and completed corrective actions were appropriate.

b. Findings

No findings of significance were identified.

1R06 Flood Protection (71111.06A)

a. Inspection Scope

The inspectors performed one inspection sample of internal flood protection features for the safety-related batteries which the Updated Final Safety Analysis Report designated as equipment that required protection from flooding due to failures of nonsafety-related systems.

The inspectors conducted walkdowns noting the following attributes associated with the battery rooms:

- Holes or unsealed penetrations in floors, ceilings and walls;
- Common drain system and sumps, including floor drain piping and check valves where credited for isolation of flood areas; and
- Sources of potential internal flooding that were not analyzed or were not adequately maintained.

The inspectors also assessed condition reports related to flood protection problems to verify that identified problems were entered into the corrective action program with the appropriate significance characterization and that corrective actions were appropriate and implemented as scheduled.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07B)

a. Inspection Scope

The regional specialist inspector reviewed documents associated with maintenance, inspection, and thermal performance testing of the containment air coolers and the control room heating, ventilation and air conditioning condensers (the heat exchangers represented two inspection samples). These heat exchangers and coolers were chosen based on previous corrosion and tube plugging concerns. While onsite, the inspector reviewed completed surveillances, associated calculations, instrument calibration records, and maintenance work orders, and performed independent calculations to verify that these activities adequately ensured proper heat transfer. The inspector reviewed the documentation to confirm that the test methodology was consistent with accepted industry practices, that test acceptance criteria were consistent with design basis values, and that the test results appropriately considered differences between test and design conditions.

The inspector also reviewed documentation to confirm that methods used to inspect the heat exchangers were consistent with expected degradation and that the established acceptance criteria were consistent with accepted industry standards. The inspector verified that systems and sub-components were free from clogging due to macrofouling and that the licensee had adequate controls in place for biotic fouling.

In addition, the inspectors reviewed condition reports concerning heat exchanger and heat sink performance issues to verify that the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of the licensee's corrective actions to address the identified issues.

b Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

The inspectors observed one crew of licensed operators during simulator training on December 3, 2003. The inspectors assessed the operators' ability to use Off-Normal and Emergency Operating plant procedures to mitigate the following simulated events:

- loss of two offsite power sources which resulted in a rise in switchyard voltage concurrent with a failure of the automatic voltage adjuster on the main generator;
- sequential high differential pressures in service water basket strainers due to debris intrusion;
- loss of one switchyard bus during a plant trip which resulted in emergency diesel generators starting and energizing safety-related electrical loads; and
- blockage of service water traveling screens due to frazil ice resulting in a loss of service water.

The inspectors also verified that the Shift Manager implemented the Emergency Plan Implementing Procedures in an accurate and timely manner when classifying the events and notifying off-site authorities. In addition, the inspectors observed the post-scenario critique to assess the licensee evaluators' and the crew's ability to self-identify performance weaknesses.

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, the Operations Log, 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 walkdowns to verify that equipment necessary to minimize risk was available for use. The following four activities were reviewed:

- Scheduled outage for Emergency Diesel Generator 1-2 during the week of September 29, 2003;
- Scheduled surveillance testing for the Reactor Protection System during the week of November 10, 2003;
- Scheduled surveillance testing for Emergency Diesel Generator 1-2 on November 18-19, 2003; and
- Emergent maintenance on Emergency Diesel Generator 1-1 on December 7-10, 2003.

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Evolutions and Events (71111.14)

a. Inspection Scope

On November 8, 2003, the inspectors observed portions of main turbine governor and stop valve testing to verify that the evolution was effectively controlled and conducted in accordance with System Operating Procedure-8, "Main Turbine and Generating Systems."

The inspectors also reviewed the events and circumstances that resulted in the unexpected trip of one nonsafety-related heater drain pump which occurred during turbine valve testing. In addition, the inspectors reviewed the events and circumstances which necessitated a downpower from 82 percent to 72 percent in response to an imminent unplanned trip of the second heater drain pump after turbine valve testing activities had been completed. The inspectors reviewed control room logs, annunciator response procedures, and off-normal operating procedures to verify that the control room operators responded as required.

The inspectors also assessed condition reports related to the turbine valve testing and verified that the problems were entered into the corrective action program with the appropriate significance characterization and that the licensee's immediate corrective actions were appropriate.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed one permanent plant modification which provided an alternate flowpath of borated water to the primary coolant system to safely shut down the plant to cold shutdown following a seismic event. The modification included the following Engineering Assistance Request (EAR) design documents:

- EAR-2000-0345, Seismic Qualification Utility Group (SQUG) Outlier Resolution for Safety Injection Refueling Water Tank T-58;
- EAR-2002-017, for modifications to the service water system and spent fuel pool cooling system; and
- EAR-2002-0293, for modifications to the charging system header.

The inspectors reviewed the associated safety analyses and design change information to verify that the design basis and performance capability of the spent fuel pool cooling system and charging system was not degraded. The inspectors also verified that the modification was installed in the plant as designed; the plant operating procedures and plant drawings were revised appropriately; and the required lengths of fire hoses, tools and connectors necessary to establish the alternate flowpath were pre-staged and available for use if needed.

Further, the inspectors verified that identified problems associated with plant modifications were entered into the licensee's corrective action program with the appropriate significance characterization, and that corrective actions were appropriate and implemented as scheduled.

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 to verify that the tests were adequately performed for the following three activities:

- Service Water Pump P-7C repack
- Emergency Diesel Generator 1-2 maintenance outage
- Low Pressure Safety Injection Pump P-67B breaker 152-111 replacement

The inspectors 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 the control room operators.

The inspectors also reviewed post maintenance testing criteria to verify that the test criteria and acceptance criteria were appropriate for the scope of work performed; reviewed completed tests and associated procedures to verify that the tests adequately verified system operability; and reviewed documented test data to verify that the data was complete and that the equipment met the testing acceptance criteria.

Further, the inspectors reviewed condition reports to verify that post maintenance testing 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 three surveillance testing activities conducted on the following risk-significant plant equipment:

- Safety Injection Initiation Circuitry
- Control Room Heating, Ventilation and Air Conditioning System
- Service Water Pump P-7A

The inspectors observed portions of the testing to verify that the 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 Updated Final Safety Analysis Report, and design basis documents to verify that the surveillance tests adequately demonstrated that system components could perform required safety functions.

Further, the inspectors reviewed selected condition reports regarding surveillance testing activities to verify that the identified problems were entered into the licensee's corrective action program with the appropriate significance characterization and that the planned and completed corrective actions were appropriate.

b. Findings

No findings of significance were identified.

1REP Equipment Availability, Reliability and Functional Capability (71111.EP)

.1 Quarterly Maintenance Effectiveness Reviews

a. Inspection Scope

The inspectors conducted three maintenance effectiveness reviews for the following:

- Containment Spray Pump P-54C
- 2400 Volt and 4160 Volt Station Power Systems
- High Pressure Safety Injection Pump Subcooling Valve CV-3070

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

The inspectors reviewed the licensee's maintenance rule performance indicators to verify that the system status had been appropriately categorized in accordance with the maintenance rule program; 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; and reviewed completed work orders 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. Additionally, the inspectors reviewed the licensee's performance criteria to verify that the criteria adequately monitored equipment performance.

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

b. Findings

1. Containment Spray Pump P-54C

Introduction

The inspectors identified a finding of very low safety significance (Green) and an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when the inboard motor bearing on Containment Spray Pump P-54C failed on August 21, 2003.

Description

During a planned breaker replacement for Containment Spray Pump P-54C, licensee personnel also replaced the inboard motor bearing oil. An operator performed the motor bearing oil replacement in accordance with the applicable work instruction on August 21, 2003. After the oil was replaced, the operator noticed that the drain plug to the bearing housing was set too far into the housing. Therefore, the operator requested and obtained permission to replace the drain plug. After the new drain plug was installed, the operator added oil to the bearing housing through the inboard motor bearing oiler to replace the oil that was drained when the drain plug was removed.

However, during post maintenance testing following Containment Spray Pump P-54C breaker replacement, operators observed smoke from the inboard motor bearing area and heard abnormal metallic noises. Therefore, the operators secured Containment Spray Pump P-54C to investigate a potentially failed motor bearing. During the investigation, licensee personnel determined that the oil level in the motor bearing housing was below the slinger ring and that the inboard motor bearing had failed due to a lack of lubrication. After further review, licensee personnel identified that the vent hole on the oiler for the inboard motor bearing on Containment Spray Pump P-54C was covered with paint. Licensee personnel subsequently determined that the motor for Containment Spray Pump P-54C was painted in June 2002 under a general work order for miscellaneous painting.

Through the root cause evaluation, licensee personnel determined that the plugged vent caused the oiler to become air bound and unable to adequately add oil to the bearing housing when the level decreased. Licensee personnel also determined that when the drain plug was replaced, enough oil was lost to uncover the bearing; however, the plugged vent on the oiler resulted in an erroneous level indication in the oiler for the bearing housing. Consequently, the operator did not add enough oil through the oiler to the bearing housing after the drain plug was replaced. As a result, the inboard motor bearing was inadequately lubricated which caused the bearing to fail when Containment Spray Pump P-54C was started.

Analysis

The inspectors determined that painting over the vent hole on the Containment Spray Pump P-54C inboard motor bearing oiler was a licensee performance deficiency which warranted a significance evaluation. The inspectors did not identify any examples of minor issues in Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues" that appropriately described this finding.

The inspectors determined that the finding was more than minor in accordance with IMC 0612, Appendix B, "Issue Disposition Screening" because if left uncorrected, the issue could become a more significant safety concern. Specifically, the painted vent hole on the bearing oiler resulted in erroneous oil level indication and prevented the oiler from adding oil to the bearing housing when the level decreased. Consequently, an inadequately lubricated bearing would not be detected until the bearing failed.

The inspectors also determined that the finding could be evaluated using IMC 0609, "Significance Determination Process," (SDP) because the finding was associated with the integrity of reactor containment. Using IMC 0609, Appendix A, "SDP Phase 1 Screening Worksheet for IE [Initiating Events], MS [Mitigating Systems], and B [Barrier Integrity] Cornerstones," the inspectors determined that the Barrier Integrity cornerstone was the only affected area.

Using the Barrier Integrity column on the SDP Phase 1 worksheet, the inspectors determined that since the finding did not represent a degradation of the radiological barrier function provided for the control room, or auxiliary building, or spent fuel pool; did not represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere; and did not represent an actual open pathway in the physical integrity of reactor containment or an actual reduction of the atmospheric pressure control function of the reactor containment, the finding screened as Green and was considered to be of very low safety significance.

Enforcement

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings" states, in part, that activities affecting quality shall be prescribed by documented instructions of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions. Contrary to this requirement, painting of Containment Spray Pump P-54C in June 2002, an activity affecting quality, did not have written instructions appropriate to the circumstances. Consequently, the vent hole on the oiler was plugged with paint which caused an erroneous oil level indication and the subsequent motor bearing failure due to an inadequately lubricated bearing on August 21, 2003. However, because this violation was associated with a finding of very low safety significance and because the finding was entered into the licensee's corrective action program, this violation is being treated as a Non-Cited Violation, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000255/2003008-01). This issue was entered into the licensee's corrective action program as CAP037180.

As part of the licensee's corrective actions, licensee personnel cleared the vent hole on the inboard motor bearing oiler for Containment Spray Pump P-54C and verified the oiler vent holes on other safety-related pump motors were not painted over. In addition, the inboard motor bearing on Containment Spray Pump P-54C was replaced, and the pump was subsequently tested satisfactorily.

2. High Pressure Safety Injection Pump P-66B Subcooling Valve CV-3070

Introduction

The inspectors identified a finding of very low safety significance (Green) and an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when High Pressure Safety Injection Pump P-66B Subcooling Valve CV-3070 failed to stroke open during surveillance testing.

Description

On August 10, 2003, during surveillance testing, air operated High Pressure Safety Injection Pump P-66B Subcooling Control Valve CV-3070 failed to stroke open with the control switch held in the open position. Control Valve CV-3070 was required to open in less than 2 seconds and had a safety-related support function for High Pressure Safety Injection Pump P-66B during long term core cooling.

During troubleshooting activities on August 11, 2003, licensee personnel discovered that a flow control valve in the operating air system was installed backwards which caused CV-3070 to close faster than intended. The faster closing rate provided higher than intended seating forces when the valve was closed. After further investigation, licensee personnel concluded that the flow control valve was most likely installed backwards when the valve actuator was rebuilt in July 1995 through Work Order 24412938. This conclusion was based on: (1) there were no additional work orders for the valve actuator since the flow control valve was initially installed in January 1986; (2) the closing time for CV-3070 after the flow control valve was initially installed in 1986 was 20 seconds; (3) one-time stem thrust data taken in February 1998 indicated that CV-3070 closed in 0.8 seconds; and (4) the as-found closing time on August 11 for CV-3070 was 1.2 seconds. Because CV-3070 did not have a safety function to close, the valve was not timed in the closed direction during quarterly testing. Therefore, no additional closing time data was available.

Consequently, licensee personnel concluded that the seating force on the valve disc from the faster than intended closing rate prevented the valve from opening during the surveillance test. However, licensee personnel determined that the faster closing rate was not conclusively the cause since the valve stroked open successfully each time it had been tested since the flow control valve was installed backwards in 1995. Also, there were no work activities performed on CV-3070 after the last successful surveillance test in May 2003. In addition, on August 11, 2003, licensee personnel were able to open CV-3070 using minor mechanical agitation during troubleshooting activities and the valve was then stroked open successfully several times after the valve was closed with the same fast closing rate.

Licensee personnel subsequently repositioned the flow control valve in the proper direction and the as-left closing time for CV-3070 was 5.0 seconds. On August 12, 2003, CV-3070 opened within 2 seconds when tested and was declared operable. However, because licensee personnel could not definitively conclude that the short closing time caused CV-3070 to not open on August 10, Work Order 24323139 was generated to disassemble and inspect CV-3070 at the earliest opportunity. In addition, to provide confidence that CV-3070 could open as required, a mid-surveillance cycle stroke test was performed on September 9, 2003, successfully.

Analysis

The inspectors determined that the incorrect installation of the flow control valve in 1995 was a licensee performance deficiency warranting a significance evaluation in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." The inspectors did not identify any examples of minor issues in IMC 0612, Appendix E, "Examples of Minor Issues," that appropriately described this finding.

The inspectors concluded that the finding was more than minor because it was associated with the Procedure Quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of a system that responds to an initiating event to prevent undesirable consequences.

The inspectors determined that the finding could be evaluated using IMC 0609, "Significance Determination Process," (SDP) because the finding was associated with the availability of a mitigating system. Using IMC 0609, Appendix A, "SDP Phase 1 Screening Worksheet for IE [Initiating Events], MS [Mitigating Systems], and B [Barrier Integrity] Cornerstones," the inspectors determined that the Mitigating Systems cornerstone was the only affected area.

Using the Mitigating Systems column on the SDP Phase 1 worksheet, the inspectors determined that since the failure of CV-3070 to open during surveillance testing was not a design or qualification deficiency; did not represent an actual loss of safety function for a system or for a single train for greater than the Technical Specification allowed outage time; and did not screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event, the finding screened out as Green and was considered to be of very low safety significance.

Enforcement

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions of a type appropriate to the circumstances and shall be accomplished in accordance with those instructions. Contrary to this requirement, the work instructions for the maintenance performed in July 1995 to rebuild the actuator for CV-3070, an activity affecting quality, were not of a type appropriate to the circumstances. Specifically, the work instructions did not contain adequate guidance to ensure that the flow control valve

was installed with the correct orientation in the operating air system for the valve actuator.

Consequently, the flow control valve was installed backwards which resulted in faster than intended closing times which contributed to valve CV-3070 failing to stroke open as required on August 10, 2003. However, because this violation was associated with a finding of very low safety significance and because the finding was entered into the licensee's corrective action program, this violation is being treated as a Non-Cited Violation, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000255/2003008-02). This issue was entered into the licensee's corrective action program as CAP037030.

Corrective actions to address the finding included reinstalling the flow control valve in the proper position, testing CV-3070 during a mid-surveillance cycle stroke test, and generating a work order to inspect the valve internals at the earliest opportunity.

.2 Biennial Assessment of Maintenance Rule Periodic Evaluations

a. Inspection Scope

The inspectors reviewed the Maintenance Rule Periodic Refueling Assessment Report for the period of August 1, 2000, to July 31, 2002. The inspectors verified that: (1) the periodic evaluation had been completed as required by 10 CFR 50.65(a)(3); (2) maintenance rule (a)(1) goals and (a)(2) performance criteria were reviewed by the licensee; (3) industry operating experience was taken into account when appropriate; (4) balancing of availability and reliability was reviewed; and (5) appropriate adjustments were made as a result of the periodic evaluation.

The inspectors also reviewed the following four systems to assess how performance problems were addressed within the maintenance rule program:

- Concentrated Boric Acid System
- Control Room Heating, Ventilation, and Air Conditioning (HVAC) System
- High Pressure Air System
- Fire Protection System

As applicable to the four systems, the inspectors verified that: (1) maintenance rule (a)(1) goals and activities were reviewed and adjusted as necessary; (2) corrective actions for (a)(1) activities were appropriate; (3) maintenance rule (a)(2) performance criteria was appropriate and met; (4) evaluations for placing the system in maintenance rule (a)(1) were completed when performance criteria was not met; (5) equipment failures were evaluated and appropriately dispositioned as functional failures, maintenance preventable functional failures or repeat maintenance preventable functional failures; and (6) preventive maintenance activities were adjusted as necessary.

The inspectors also reviewed a sample of condition reports to verify that the significance of identified problems was appropriately characterized. For select condition reports, the

inspectors verified that the corrective actions were appropriate and implemented in a timely manner commensurate with the significance of the problem.

b. Findings

No findings of significance were identified.

.3 Operability Evaluations

a. Inspection Scope

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

- Emergency Core Cooling System
- Steam Generator Low Pressure Bypass signal
- High Pressure Safety Injection Pump P-66B Subcooling Valve CV-3070

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, Updated 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.

In addition, the inspectors reviewed selected condition reports regarding operability determinations to verify that the identified problems were entered into the licensee's corrective action program with the appropriate significance characterization and that planned and completed corrective actions were commensurate with the significance.

b. Findings

No findings of significance were identified.

.4 Operator Workarounds (OWAs)

a. Inspection Scope

The Inspectors reviewed the following three risk significant operator workarounds:

- Control Room Indicator Light Failure
- Warm Water Recirculation Pump P-5 Vacuum Piping System
- Start-up Transformer 1-2 Load

The inspectors evaluated whether the workarounds would adversely affect the operators ability to implement abnormal and emergency operating procedures. The inspectors reviewed the planned actions to correct the workarounds to verify that the priority to

resolve the deficiencies was reasonable when considering the potential impact on plant risk and safety.

The inspectors also completed an aggregate assessment of the operator workarounds, operator challenges, and control room deficiencies that were previously identified by licensee personnel. The inspectors verified that the cumulative effects did not create significant adverse consequences regarding the reliability, availability and operation of risk significant systems. The inspectors also verified that the cumulative effects did not adversely impact the operators ability to implement abnormal and emergency response procedures in a timely manner when responding to plant transients and accidents.

b. Findings

No findings of significance were identified.

.5 Temporary Plant Modifications

.a Inspection Scope

The inspectors reviewed the modification documentation and the associated 10 CFR 50.59 evaluation for temporary modification TM-2000-024. This temporary modification was developed to provide an alternate water supply that could be used, if necessary, to backwash the service water traveling screens. The inspectors verified that the temporary modification would not adversely impact other safety-related equipment and that testing activities for the temporary modification were adequate to ensure that the modification would function as intended.

The inspectors also verified that System Operating Procedure - 15, Attachment 11, "Alternate Water Supply To Clean Traveling Screens," provided adequate guidance to the operators for using the alternate water supply.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors reviewed Revisions 6, 7, and 8 of the Palisades Nuclear Plant Site Emergency Plan to determine if changes identified in these revisions reduced the plan's effectiveness, pending on-site inspection of the implementation of these changes.

b. Findings

The inspectors identified that the licensee had incorporated NUMARC/NESP-007, "Methodology for Development of Emergency Action Levels," (NUMARC-007) emergency action levels (EALs) into its approved standardized classification scheme which were based on NUREG-0654/FEMA-REP-1, "Criteria for Preparation and

Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," (NUREG-0654). This was identified as an Unresolved Item (URI) pending determination whether any violation of NRC requirements occurred, and a determination as to the significance, if any violation is determined to have occurred.

During the in-office review of the licensee's emergency plan changes, it was identified that the revisions to the emergency plan deleted EALs and replaced certain of the deleted EALs with NUMARC-007 EALs. Additional information provided by the licensee indicated these changes resulted from a condition report initiated when the licensee's shift supervisors were making different classification decisions for the same incident presented on the simulator. To make the classification implementing procedure more "user friendly" the licensee incorporated certain NUMARC EALs. The licensee indicated in certain cases the incorporation of specific NUMARC-007 EALs allowed elimination of NUREG-0654 EALs because the same information was covered in other parts of the classification procedure.

A brief listing of examples of emergency plan EALs that had been deleted and NUMARC-007 EALs added, included the following:

Revision 6 of the emergency plan:

- Table 4-2, page 36, "Engineered Safety Features," the Unusual Event EAL for reactor protection system (RPS) failure was deleted and inability to reach a required mode within Technical Specification limits (NUMARC-007 #SU2) was added.

- Table 4-2, page 36, "Engineered Safety Features," the Alert EAL for complete loss of auxiliary feedwater system was deleted.

- Table 4-2, page 36, "Engineered Safety Features," the Site Area Emergency EAL for transient requiring operation of shutdown systems with failure to trip was deleted and failure of the RPS instrumentation to complete or initiate an automatic reactor scram and a RPS setpoint has been exceeded and a manual scram was not successful (NUMARC-007 #SS2) was added.

- Table 4-2, page 36, "Engineered Safety Features," the General Emergency EAL for transient requiring operation of shutdown system with failure to trip which results in core damage or additional failure of core cooling and makeup systems (NUREG 0654 #G-5.c) was deleted and failure of the RPS to complete an automatic scram and manual scram was not successful and there is indication of an extreme challenge to the ability to cool the core (NUMARC-007 #SG2) was added.

- Table 4-2, page 36, "Engineered Safety Features," the General Emergency EAL for transient initiated by loss of feedwater and condensate system followed by failure of auxiliary feedwater system for an extended period (NUREG 0654 #G-5.b) was deleted.

The inspectors identified that the intermingling of classification schemes deviated from Regulatory Guide 1.101, Revision 3, which states, in part, that licensees may use either NUREG-0654 or NUMARC-007 in their EAL scheme, but may not use portions of both methodologies. Regulatory Guide 1.101 also states that licensees who propose to revise their currently approved EAL classification scheme using the NUMARC-007 method adhere to the requirements in Section IV.B of Appendix E to 10 CFR Part 50 which states, in part, that these emergency action levels shall be discussed and agreed on by the applicant and State and local government authorities and approved by the NRC.

This issue is considered an URI pending further review by the NRC. In accordance with NRC Inspection Procedure 71114.04, "Emergency Action Level and Emergency Plan Changes," these changes potentially result in a reduction of emergency plan effectiveness and will be referred to the Office of Nuclear Reactor Regulation for further review. Pending completion of these activities, the issue is considered an URI (URI 05000255/2003008-03). The licensee has entered this issue into their corrective action program as CAP 039195.

1EP6 Emergency Plan Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed a simulator training session for one crew of licensed operators on December 17, 2003, in which the Shift Manager was required to implement the emergency plan in response to simulated plant conditions. Licensee Emergency Preparedness personnel had pre-designated that the opportunities for the Shift Manager to classify the event and make required notifications would be evaluated and included in the Drill and Exercise Performance performance indicator data.

The inspectors verified that the Shift Manager classified the emergency condition and completed the required notifications to State and Local Police authorities in an accurate and timely manner as required by the emergency plan implementing procedures. The inspectors also reviewed the Emergency Preparedness Evaluators summary report to verify that the data included in the Drill and Exercise Performance performance indicator was accurate.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Self-Contained Breathing Apparatus (SCBA) Maintenance

a. Inspection Scope

The inspectors reviewed the vital component maintenance records over the past 5 years for three SCBA units currently designated as "ready for service." The inspectors also ensured that the required, periodic air cylinder hydrostatic testing was documented and up-to-date, and that the Department of Transportation required retest air cylinder markings were in place for these three units: OCR-42 (located in the Ops Conference Room by the Control Room Viewing Gallery); T625-47 (located along the east wall of the Turbine Deck); and RPO-11 (located on the 611 foot elevation near the Radiation Protection Offices). As the licensee did not itself conduct maintenance of vital components of SCBA units, the inspectors reviewed licensee and vendor maintenance procedures, including those for the low-pressure alarm and pressure-demand air regulator, and the SCBA manufacturer's recommended practices to determine if there were inconsistencies between them.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

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

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the calendar years 2001 and 2002 Radiological Effluent Release Reports to verify that the program was implemented as described in Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) and to determine if ODCM changes were made in accordance with Regulatory Guide 1.109 and NUREG-0133. The inspectors reviewed the Radiological Effluent Release Reports and ODCM, to determine if any changes to the design and/or operation of the radioactive waste systems changed the dose consequence to the public. The inspectors also reviewed technical and/or 10 CFR 50.59 evaluations performed, when required, for any such modifications and determined whether radioactive liquid and gaseous effluent radiation monitor setpoint calculation

methodology changed since completion of the modifications. The inspectors determined if anomalous results reported in the current Radiological Effluent Release Report were adequately resolved.

The inspectors reviewed RETS/ODCM to identify the effluent radiation monitoring systems and its flow measurement devices, effluent radiological occurrence performance indicator incidents in preparation for onsite follow-up, and the Final Safety Analysis Report (FSAR) description of all radioactive waste systems.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection - Walk-down of Effluent Control Systems, System/Program Modifications, Air Cleaning System Surveillances, and Instrument Calibrations

a. Inspection Scope

The inspectors walked down the major components of the gaseous and liquid release systems (e.g., radiation and flow monitors, demineralizers and filters, tanks, and vessels) to observe current system configuration with respect to the description in the FSAR, ongoing activities, and equipment material condition.

The inspectors reviewed the licensee's technical justification for changes made by the licensee to the ODCM, as well as to the liquid or gaseous radioactive waste system design, procedures, or operation since the last inspection to determine whether the changes affected the licensee's ability to maintain effluents as-low-as-reasonably-achievable and whether changes made to monitoring instrumentation resulted in a non-representative monitoring of effluents.

The inspectors reviewed air cleaning system surveillance test results to ensure that the system was operating within the licensee's acceptance criteria. Specifically, the inspectors reviewed the most recent results of the Ventilation Filter Testing Program for the Control Room Ventilation System to verify that test methodology, frequency and test results met Technical Specification requirements. The inspectors reviewed and discussed the test results of in-place high efficiency particulate air (HEPA) and charcoal absorber penetration tests, laboratory tests of charcoal absorber methyl iodide penetration, and in-place combined HEPA filter and charcoal absorber train pressure drop tests for the systems with system engineering staff.

The inspectors reviewed records of instrument calibrations performed since the last inspection for each point of discharge effluent radiation monitor and flow measurement device and reviewed any completed system modifications and the current effluent radiation monitor alarm setpoint value for conformance with RETS/ODCM requirements. The inspectors also reviewed calibration records of radiation measurement (i.e., counting room) instrumentation associated with effluent monitoring and release activities and the quality control records for the radiation measurement instruments.

These reviews represented four inspection samples: one for the walk down of the effluent control systems, one for the program/system modification reviews, one for the air cleaning system surveillance review, and one for the review of instrument calibration records.

b. Findings

During a walk down of the Radioactive Gaseous Effluent Monitoring (RGEM) system, the inspectors identified that the "as installed" configuration of the sample piping running from the isokinetic sampling head within the station's stack leading to the RGEM radiological monitors contained at least four piping bends (i.e., elbows) of approximately 90 degrees each. This was identified as an Unresolved Item (URI) pending determination whether any violation of NRC requirements occurred, and a determination as to the significance, if any violation is determined to have occurred.

Upon this observation, the inspectors inquired of the licensee as to what assurances there were that the piping configuration did not promote plate-out of iodines and particulates from the effluent stream and that the system was obtaining a representative sample of the station's gaseous effluents. Prior to the end of the on-site portion of the inspection, the licensee provided the inspectors a copy of the RGEM system design documentation (circa 1982), which indicated that the system was designed and installed such that it receives a representative isokinetic sample of plant gaseous effluent and that the sample piping from the stack to the RGEM system is heat traced and insulated to prevent condensation and plating out of the effluent sample. The inspectors walked-down the sample piping to verify that it was insulated and the heat tracing was operable.

During in-office review of the design documentation, the inspectors identified that the RGEM "Design Criteria" (Section 3.0) for the system included ANSI N13.1-1969, "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities." Section B5 of Appendix B of ANSI N13.1-1969 indicates that "elbows in sampling lines should be avoided if at all possible, but when they are required, the bend radius of the elbow should be as long as practicable, and design flow rates through any line containing an elbow should be kept low." The inspectors also noted that the ANSI standard did not address the use of piping insulation or heat tracing as methods to mitigate iodine and particulate plate-out.

Therefore, the inspectors preliminarily determined that the "as installed" configuration of the RGEM sampling piping did not appear to meet the design criteria of the ANSI standard. However, the inspectors were unable to determine if the "as installed" configuration of the RGEM system prevented the collection of representative gaseous effluent samples, and the significance the plate-out had, if any, on the public dose consequences from the station's gaseous effluents. The licensee captured this issue in its corrective action program as CAP 039097. Pending the completion of the licensee's evaluation of this issue and the NRC's review of the licensee's evaluation, this issue is considered a URI (URI 05000255/2003008-04).

.3 Onsite Inspection - Effluent Release Packages, Abnormal Releases, Dose Calculations, and Laboratory Quality Control and Assurance

a. Inspection Scope

As there were no routine radioactive liquid releases conducted during the on-site inspection, the inspectors reviewed several radioactive liquid waste release permits, including the projected doses to members of the public, to verify that appropriate treatment equipment was used and that radioactive liquid waste was processed and released in accordance with RETS/ODCM and procedure requirements. The inspectors observed the routine processing (including sample collection and analysis) of radioactive gaseous effluent from Waste Gas Decay Tank T-101A, and reviewed several other radioactive gaseous effluent release permits, to verify that appropriate treatment equipment was used and that the radioactive gaseous effluent was processed and released in accordance with RETS/ODCM and procedure requirements.

The inspectors reviewed the records of abnormal releases, or releases made with inoperable effluent radiation monitors, and reviewed the licensee's actions for these releases to ensure an adequate defense-in-depth was maintained against an unmonitored, unanticipated release of radioactive material to the environment.

The inspectors reviewed a selection of monthly, quarterly, and annual dose calculations to ensure that the licensee properly calculated the offsite dose from radiological effluent releases and to determine if any annual RETS/ODCM (i.e., Appendix I to 10 CFR Part 50 values) limits were exceeded.

The inspectors reviewed the results of the interlaboratory comparison program to verify the quality of radioactive effluent sample analyses performed by the licensee. The inspectors reviewed the licensee's quality control evaluation of the interlaboratory comparison test and associated corrective actions for any deficiencies identified. The inspectors reviewed the licensee's assessment of any identified bias in the sample analysis results and the overall effect on calculated projected doses to members of the public. In addition, the inspectors reviewed the results from the licensee's Quality Assurance audits to determine whether the licensee met the requirements of the RETS/ODCM.

These reviews represented four inspection samples: one for the review of effluent release packages, one for the abnormal release reviews, one for the dose calculation reviews, and one for the review of laboratory quality control and assurance.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed licensee self-assessments, audits, and Special Reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also verified that the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also reviewed corrective action reports from the radioactive effluent treatment and monitoring program since the previous inspection, interviewed staff, and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

1. Initial problem identification, characterization, and tracking;
2. Disposition of operability/reportability issues;
3. Evaluation of safety significance/risk and priority for resolution;
4. Identification of repetitive problems;
5. Identification of contributing causes;
6. Identification and implementation of effective corrective actions;
7. Resolution of Non-Cited Violations (NCVs) tracked in the corrective action system; and
8. Implementation/consideration of risk significant operational experience feedback.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

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

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most current Annual Radiological Environmental Operating Report (for calendar year 2002) and licensee assessment results to verify that the REMP was implemented as required by Technical Specifications and the Offsite Dose Calculation Manual (ODCM). The inspectors reviewed the report for changes to the ODCM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, interlaboratory comparison program, and analysis of data. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) for information regarding the environmental monitoring

program and meteorological monitoring instrumentation. The inspectors reviewed the scope of the licensee's audit program to verify that it met the requirements of 10 CFR 20.1101(c).

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked down 75 percent of the air sampling stations and approximately 23 percent of the thermoluminescence dosimeter (TLD) monitoring stations to determine whether they were located as described in the ODCM and to assess the sampling capability and material condition of the equipment.

The inspectors observed the collection and preparation of selected environmental samples (e.g., ground and surface water, milk, vegetation, sediment, and soil) to verify that environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were conducted in accordance with licensee procedures.

The inspectors reviewed the operation of the station's meteorological instruments, including data readout and recording instrumentation at the tower and in the control room, to verify that they were as described, operable, calibrated, and maintained in accordance with guidance contained in the UFSAR, NRC Safety Guide 23, and licensee procedures. The inspectors compared real-time data collected at the meteorological tower, such as wind speed, wind direction, and differential temperature, to the time-average data transmitted to the control room to verify data integrity.

The inspectors reviewed each event documented in the 2002 Annual Radiological Environmental Operating Report which involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement for the cause and corrective actions, and conducted a review of the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection (LLDs)). The inspectors reviewed the associated radioactive effluent release data that was the likely source of the released material identified by the REMP sample.

The inspectors reviewed significant changes, if any, made by the licensee to the ODCM as the result of changes to the land census or sampler station modifications since the last inspection. In particular, the inspectors reviewed technical justifications for the recently changed sampling locations for two outer-ring TLD stations. The inspectors assessed the licensee's ODCM change evaluations to verify that the changes did not adversely affect the licensee's ability to monitor the impacts of radioactive effluent releases on the environment.

The inspectors reviewed the calibration and maintenance records for all twelve air samplers and focused on the air flow meter and particulate filter/charcoal cartridge components of the samplers. Because the licensee did not conduct analyses of REMP samples on-site, the inspectors were not able to review licensee calibration records for environmental sample radiation measurement instrumentation (i.e., count room equipment), or review quality control charts for count room instrumentation.

However, the inspectors reviewed the results of the REMP sample vendor's quality control program, including the vendor's interlaboratory comparison program results, to verify the adequacy of the vendor's program and corrective actions taken for any identified deficiencies. The inspectors reviewed the detection sensitivities utilized by the REMP sample vendor for counting samples to verify that the samples met the TS/ODCM required LLDs. The inspectors reviewed audits and technical evaluations the licensee performed on the vendor's program. The inspectors reviewed quality assurance audit results of the program to determine whether the licensee met Technical Specification and ODCM requirements.

These reviews represented six inspection samples.

b. Findings

No findings of significance were identified.

.3 Unrestricted Release of Material from the Radiologically Controlled Area (RCA)

a. Inspection Scope

The inspectors observed several locations where the licensee monitored potentially contaminated material leaving the RCA, and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use to verify that the work was performed in accordance with plant procedures.

The inspectors assessed the radiation monitoring instrumentation utilized for the unrestricted release of material from the RCA to verify that it was appropriate for the radiation types present and was calibrated with the requisite radiation sources. The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material and verified that there was guidance on how to respond to indications of the presence of licensed radioactive material. The inspectors reviewed the licensee's equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance contained in IE Circular 81-07 and IE Information Notice 85-92 for surface contamination and HPPOS-221 for volumetrically contaminated material. The inspectors reviewed the licensee's program to determine if it adequately identified the potential for difficult-to-detect radionuclides (i.e., radionuclides that decay via electron capture) and accounted for those radionuclides during routine unrestricted release surveys. Finally, the inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters (i.e., counting times and background radiation levels), and that the licensee had not established a "release limit" by altering

instrumentation typical sensitivities through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, Licensee Event Reports, and Special Reports, as available, related to the Radiological Environmental Monitoring Program since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also reviewed the licensee's self-assessment program to determine if it was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also reviewed corrective action reports related to the REMP and radioactive material control program since the previous inspection, interviewed staff, and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

1. Initial problem identification, characterization, and tracking.
2. Disposition of operability and reportability issues.
3. Evaluation of safety significance, risk, and priority for resolution.
4. Identification of repetitive problems.
5. Identification of contributing causes.
6. Identification and implementation of effective corrective actions.
7. Resolution of Non-Cited Violations tracked in the corrective action system.
8. Implementation and consideration of risk significant operational experience feedback.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

.1 Reactor Safety Performance Indicators

a. Inspection Scope

The inspectors used definitions and guidance contained in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the data submitted for the following three performance indicators:

- Unplanned Power Changes Per 7,000 Critical Hours
- Reactor Coolant System (RCS) Specific Activity
- RCS Leakage

The inspectors reviewed the data submitted by licensee personnel for October 2002 through September 2003 to verify that the Unplanned Power Changes per 7,000 Critical Hours and Reactor Coolant System Leakage Performance Indicators were reported accurately. The inspectors also reviewed samples of records regarding primary coolant system leakage calculations, control room logs and monthly operating data reports.

The inspectors reviewed the licensee's assessment of its performance indicator for RCS specific activity by reviewing Chemistry Department records and selected isotopic analyses (July 2002 through March 2003) to verify that the greatest Dose Equivalent Iodine (DEI) value obtained during those months corresponded with the value reported to the NRC. The inspectors also reviewed selected DEI calculations to verify that the appropriate conversion factors were used in the assessment as required by Technical Specifications. Additionally, on October 22, 2003, the inspectors observed a chemistry technician obtain and analyze a reactor coolant sample for DEI to verify adherence with licensee procedures for the collection and analysis of reactor coolant system samples.

Further, the inspectors reviewed condition reports regarding problems with performance indicator data to verify that the issue was entered into the corrective action program with the appropriate significance level. The inspectors also verified that planned corrective actions were appropriate and implemented as scheduled.

b. Findings

No findings of significance were identified.

.2 Radiation Protection Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's submittals for performance indicators (PIs) and periods listed below. The inspectors used PI definitions and guidance contained in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment

Performance Indicator Guideline," to verify the accuracy of the PI data. The following PI was reviewed:

- RETS/ODCM Radiological Effluent Occurrence

Since no reportable occurrences were identified by the licensee for 3rd Quarter 2002 through 3rd Quarter 2003, the inspectors compared the licensee's data and reviewed corrective action documents generated during the time period to identify any potential occurrences such as unmonitored, uncontrolled or improperly calculated effluent releases that may have impacted offsite dose. Also, the inspectors evaluated the licensee's methods for determining offsite dose and selectively verified that liquid and gaseous effluent release data and associated offsite dose calculations performed since this indicator was last reviewed were accurate.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

a. Inspection Scope

On August 10, 2003, during scheduled quarterly surveillance testing, High Pressure Safety Injection Pump Subcooling Valve CV-3070 failed to stroke open as required. Consequently, High Pressure Safety Injection Pump P-66B was declared inoperable and Technical Specification 3.5.2.B.1 action was entered which required the pump to be restored to operable status within 72 hours.

The inspectors reviewed the apparent cause evaluation for Condition Report CAP037030, "Subcooling Valve CV-3070 Failed to Open During QO-5 Valve Test Procedure," to verify that: (1) the problem was accurately identified; (2) the apparent cause was adequately justified; (2) extent of condition and generic implications were appropriately addressed; and (3) corrective actions were appropriately focused to address the problem and implemented commensurate with the safety significance of the issue.

b. Findings

No findings of significance were identified. However, the inspectors noted one weakness regarding the evaluation and resultant corrective actions.

Licensee personnel concluded that the apparent cause for CV-3070 to not open was a flow control valve in the operating air system which had been installed backwards in 1995. Licensee personnel also concluded that human error was the cause of the flow control valve being installed incorrectly. However, the evaluation did not identify that the work order and work instructions utilized in 1995 during the maintenance activity to disassemble and then rebuild the actuator to CV-3070 did not provide any guidance to maintenance personnel regarding proper orientation for the flow control valve.

Consequently, there was no corrective action developed to revise the work instruction to ensure adequate guidance was provided to the maintenance personnel during any subsequent CV-3070 actuator maintenance activities. However, this issue was of minor significance since maintenance on the valve actuators had not been performed since the evaluation was completed. Therefore, the failure to develop a corrective action to review and revise the work instructions had not resulted in any actual adverse consequences.

.2 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

The inspectors reviewed two Licensee Event Reports to verify that the events were accurately described, to determine if any violations of NRC requirements occurred, and to assess the appropriateness of identified corrective actions.

.1 (Closed) Licensee Event Report (LER) 50-255/03-005: Emergency Diesel Generators Start on Low Voltage Condition.

On August 14, 2003, with the plant operating at 100 percent power, an electrical power grid disturbance occurred that momentarily lowered voltage on 2400 volt safety-related Buses 1C and 1D which caused both Emergency Diesel Generators to start. However, Buses 1C and 1D remained energized from offsite power throughout the event as designed. Local grid conditions stabilized within 5 minutes and both Emergency Diesel Generators were subsequently secured. The inspectors did not identify any issues of significance. This LER is closed.

.2 (Closed) LER 03-004: Inoperable Train of Containment Cooling - Condition Prohibited by Technical Specifications.

This issue was previously documented in NRC Integrated Inspection Report 05000255/2003006, Section 1R15, as a self-revealed finding of very low safety significance (Green) with an associated Non-Cited Violation for exceeding the completion time for required actions in Technical Specification 3.6.6, “Containment

Cooling Systems." The inspectors did not identify any new information of significance. This LER is closed.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. D. J. Malone and other members of licensee management on January 9, 2004. 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 (RETS/ODCM) inspection with Mr. R. Remus on December 19, 2003. A telephonic re-exit was conducted with Messrs. J. Beer and D. G. Malone on December 31, 2003, to discuss the establishment of the URI related to the RGEM system (see Section 2PS1.2).

- Radiation Protection (REMP and Radioactive Material Control) inspection with Mr. M. Carlson on October 24, 2003.

- Biennial Heat Sink inspection with Mr. D. Cooper on November 21, 2003.

- Emergency Preparedness inspection with Mr. T. Blake on December 22, 2003.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
D. Cooper, Senior Vice President Group Operations
D. Malone, Site Vice President
P. Harden, Site Director
R. Remus, Plant Manager
M. Carlson, Engineering Director
T. Blake, Emergency Preparedness Supervisor
L. Lahti, Licensing Manager
G. Hettel, Manager, Maintenance and Construction
G. Packard, Operations Manager
D. Williams, Chemistry and Radiation Safety Manager

Nuclear Regulatory Commission
D. Hood, Project Manager, NRR
S. Klementowicz, NRR, Public Radiation Safety Cornerstone Lead Health Physicist

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000255/2003008-01	NCV	Failure of Containment Spray Pump P-54C Inboard Motor Bearing
05000255/2003008-02	NCV	Failure of High Pressure Safety Injection Pump P-66B Subcooling Valve CV-3070 to Open
05000255/2003008-03	URI	Emergency Action Level and Emergency Plan Changes
05000255/2003008-04	URI	RGEM System Configuration May Not Obtain a Representative Gaseous Effluent Sample

Closed

05000255/2003008-01	NCV	Failure of Containment Spray Pump P-54C Inboard Motor Bearing
05000255/2003008-02	NCV	Failure of High Pressure Safety Injection Pump P-66B Subcooling Valve CV-3070 to Open
50-255/03-004	LER	Inoperable Train of Containment Cooling - Condition Prohibited by Technical Specifications
50-255/03-005	LER	Emergency Diesel Generators Start on Low Voltage Condition

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

Off-Normal Procedure-12; Acts of Nature; Revision 18 Murray and Trettel Storm Warning, November 12, 2003
Alarm Response Procedure-7; Auxiliary Systems Scheme EK-11 (C-13); Windows 24, 29, 32, 38 and 44; Revision 65
System Operating Procedure-16, Attachment 10; Frazil Ice - Information / Prevention / Mitigation; Revision 31
System Operating Procedure-23, Attachment 8; Cold weather Checklist; Revision 17
System Operating Procedure-23, Attachment 9; Cold weather Checklist-Electrical; Revision 17

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP038280; Evaluate Whether MV-ES3243, SIRW Tank Level Transmitter Isolation, Cold Weather Protection is Adequate
CAP038315; Work Week 2344: Cold Weather Checklist Not Completed in a Timely Manner

Condition Reports Reviewed To Assess Corrective Actions

CAP033427; Received ED-1129 Service Water Bay Low Level Alarm
CAP038281; LT-0331, SIRW Tank Level Transmitter, Not Checked in SOP-23, Attachment 8, Cold Weather Checklist
CAP038000; Intake Structure Ventilation Operation Contrary to Updated Final Safety Analysis Report Described Operation

1R04 Equipment Alignment

Plant Procedures and Miscellaneous Documents

SOP-19; Instrument and Service Air System Checklist; Revision 29
SOP-24 Ventilation and Air Conditioning System; Revision 37
WO24323843; Clean All Blockages on P-66A Bearing Housing Caps
M218; Piping and Instrument Diagram for the Control Room Heating, Ventilation and Air Conditioning

Condition Reports Reviewed to Assess Corrective Actions

CAP037656; Potential Loss of High Pressure Safety Injection Pump Bearing Housing Vent Path
CAP037659; P-67A Low Pressure Safety Injection Pump Bearing Housing Vent Inspection

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP038709; East Mechanical Equipment Room Deficiencies Noted by NRC

1R05 Fire Protection

Plant Procedures

ONP25.2; Off-Normal Procedure - Fire Which Threatens Safety-Related Equipment Fire Areas 12, 10, 30, 31; Revision 12
FPSP-SI-1; Data Sheet for Alarm Bells and Ionization Smoke Detectors for Fire Areas 12, 10, 30, 31, Revision 3
FPSP-RP-11; Fire Barrier Penetration Seal/Conduit Seal Inspection Form for Fire Areas 12, 10 30, 31; Revision 5
FPSP-RM-5; Palisades Fire Damper Sheet for Fire Areas 12; Revision 2
FPSP-SO-2; Safety-Related Fire Door Data Sheet for Fire Areas 12, 10, 30, 31; Revision 0
FPSP-WP-1; Safety-Related Fire Door Data Sheet Fire Areas 12, 10, 30, 31; Revision 1

Condition Reports Reviewed to Assess Corrective Actions

CAP029787; Containment Fire Detection does Not Meet Code of Record
CAP029676; Technical Inaccuracies In the Fire protection Program Report

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP038727; Emergency Lighting Unit ELU-67 is Directed Slightly Upward (Above Horizontal)
CAP039240; "Fire Detectors Not Installed as Outlined in the Modification Package"

Miscellaneous Documents

FSAR; Section 9.6, Fire Protection; Revision 23
FSAR; Section 9, Fire Detection Instrumentation; Revision 24
Fire Hazards Analysis Report; Revision 4
Palisades Plant Post Fire Safe Shut-down Summary Report; September 1, 1978
Fire Protection Safety Evaluation Report by the Office of NRR in the Matter of Consumer’s Power Company Palisades Plant Docket 50-255; September 1, 1978

1R06 Flood Protection

Final Safety Analysis Report; Table 5.4-1; Safety Related Equipment That Requires Protection From Flooding Due to Failures of Nonclass 1 Systems; Revision 21
Final Safety Analysis Report; Section 5.4.2; Flooding and Wetting From Plant Sources; Revision 24

Condition Reports Reviewed to Assess Corrective Actions

CAP035933; Expansion Joint Inspection Fails to Identify Known Deficiency
CAP034759; Water Tight Door #58 Failed Inspection (Doghouse Door)
CAP034720; Water Tight Door #51 Failed Inspection Criteria

Work Orders

WO24321400; Door 58, East Engineered Safeguards Doghouse Door
WO24321399; Door 51, Engineering Safeguards Entrance

1R07 Heat Sink Performance

CH 1.11; MIC Control Program Inspection Report - VC-10; dated April 18, 2001, October 24, 2002, and February 24, 2003
CH 1.11; MIC Control Program Inspection Report - VC-10 Service Water Piping; dated October 24, 2002
CH 1.11; MIC Control Program Inspection Report - VC-11; dated October 1, 2001, and July 29, 2003
CH 1.11; MIC Control Program Inspection Report - VC-11 Service Water Piping; dated December 4, 2001
CH 1.11; MIC Control Program Inspection Report - VC-11 Service Water Valve MV-SW281; dated December 4, 2001
CH 1.11; MIC Control Program Inspection Report - VHX-2; dated April 12, 2001
CH 1.11; MIC Control Program Inspection Report - VHX-3; dated March 30, 2003
CH 1.11; Biofouling and MIC Control Program; Revision 1
DBD-1.06; Control Room HVAC System; Revision 7
DBD-2.08; Containment Air Coolers; Revision 2
EA-D-PAL-93-272E-02; Control Room HVAC Refrigeration Unit Performance at 85 Degrees Fahrenheit Entering Service Water Temperature; Revision 0
EA-LOCA-2001-01; Containment Response to a LOCA Using CONTEMPT-LT/28; Revision 1
EA-LTP-99-01; Methodology for Capacity Testing and Analysis of the Control Room HVAC System; Revision 0
EA-VC10/11-2000; Uncertainty Analysis for the Control Room HVAC System Surveillance Procedure; Revision 1
EM-09-15; Raw Water Corrosion Program; Revision 4
EM-09-16; Heat Exchanger Condition Assessment Program; Revision 3
EM-09-16; Heat Exchanger Visual Testing Checklist - VC-11; completed July 29, 2003
RO-216; Service Water Flow Verification; Revision 2; completed April 4, 2003
RT-202, Basis Document; Control Room Heat Removal Capability; Revision 1

RT-202; Control Room Heat Removal Capability (Train A); Revision 2; completed August 19, 2003
RT-202; Control Room Heat Removal Capability (Train B); Revision 2; completed August 19, 2003
Palisades 2001 Refuel Outage Report by Underwater Construction Corporation; dated May 15, 2001
Palisades 2003 Refuel Outage Report by Underwater Construction Corporation; dated April 5, 2003
Raw Water Corrosion Program Report Operational Cycle 15 and 2001 Refueling Outage Report; dated August 13, 2001
Raw Water Corrosion Program Report Operational Cycle 16 and 2003 Refueling Outage Report; dated July 22, 2003
NMC Letter to NRC; Resolution of Generic Letter 96-06 Waterhammer Issues; dated February 28, 2003
NMC Letter to NRC; Resolution of Generic Letter 96-06 Two-Phase Flow Issues; dated July 24, 2003
M123; Heating & Ventilation Reactor Containment Building Coolers-Unit V-3; Revision 0
M124; Heating & Ventilation Reactor Containment Building Coolers-Unit V-1 and Unit V-2; Revision 6
M218; HTG. Vent. & Air Cond. Control Room; Revision 9
VEN-M-60A, Sheet 1; Type "R" Coil 36 Tube Face, 4'-11 ½" NTL, 12 Row, 4 Pass; Revision 1
VEN-M-60A, Sheet 2; Type "R" Coil 36 Tube Face, 4'-11 ½" NTL, 12 Row, 4 Pass; Revision 0
VEN-M-60A, Sheet 7; Containment Air Coolers VHX-1, VHX-2, and VHX-3 Cooling Coil Tube Map; Revision 0
C-PAL-00-3205; Apparent Tube Blockage on Containment Air Cooler Coil VHX-3; dated October 26, 2000
C-PAL-00-3664; Thermography Scanning Finds More Containment Air Cooler Tubing Plugged; dated December 20, 2000

1R11 Licensed Operator Requalification

Simulator Performance Exercise - 42; Licensed Operator Requalification; Course N00320; Revision 0
Simulator Performance Evaluation; Crew 1; December 3, 2003

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

Miscellaneous Documents

Operator's Risk Reports; September 29 through October 3, November 10-13 and 18-19, and December 7-10
Daily Maintenance Work Schedules; September 29 through October 3, November 10-13 and 18-19, and December 7-10
Operations Log entries; September 29 through October 3, November 10-13 and 18-19, and December 7-10

1R14 Non-Routine Plant Evolutions and Events

Plant Procedures

Alarm Response Procedure - 1; Turbine Condenser and Feedwater Scheme EK-01; Window 60; Feedwater Pumps Lo Suction; Revision 52
Alarm Response Procedure - 1;Turbine Condenser and Feedwater Scheme EK-01; Window 72; Moisture Separator Drain Tank Hi-Lo Level; Revision 52
Off Normal Procedure - 3; Loss of Main Feedwater; Revision 19
Off Normal Procedure - 26; Rapid Power Reduction; Revision 1
System Operation Procedure - 8, Attachment 2; Main Turbine and Generating Systems, System Testing; Revision 65

Condition Reports Reviewed to Assess Significance Characterization for Identified Problems

CAP038519; Unanticipated Trip of "A" Heater Drain Pump During Turbine Valve Testing
CAP038508; Unexpected Alarm EK-0172 Moisture Separator Drain Tank Hi-Lo Level
CAP038512; E-9A MSR Reheat Stop Valve CV-0537 Failed to Close During Turbine Valve Testing
CAP038514; Heater Drain Pump P-10A Discharge Check Valve Stuck Open
CAP038511; E-9B MSR Intercept Valve CV-0535 Failed to Reopen During Turbine Valve Testing
CAP038509; Received Alarm EK-0105, Turbine High Vibration, Unexpectedly
CAP038513; Plant Challenges Due to Closure of MSR E-9A Reheat Sop Valve CV-0537

1R17 Permanent Plant Modifications

Engineering Assistance Requests

EAR-2000-0345; Seismic Qualification Utility Group Outlier Resolution for Safety Injection Refueling Water Tank, T-58; June 18, 2003
EAR-2000-017; Alternate Safe-Shutdown Pathway for Cold-Shutdown Using Service Water; May 30, 2003
EAR-2002-0293; Piping Modifications to Charging Pump Suction Piping to Facilitate Crosstie Via Fire Hose from the Spent Fuel Pool Piping for Alternate Safe-Shutdown Pathway for Hot-Shutdown; May 9, 2003

Plant Procedures

PCSO-5; Special Operating Procedure, Alternate Source for Charging to PCS; Revision 0
COP-27; Chemistry Operating Procedure, Spent Fuel Pool System Chemistry; Revision 17
PPAC X-OPSADM02; Preventive Maintenance Work Order - Alternate Safe Shutdown Pathway Inspect

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP038236; Spent Fuel Pool Boron Administrative Limit Not Timely Incorporated in Chemistry Procedures
CAP036336; Closeout Item EAR-2000-0345 - SFP Boron Concentration During Maintenance
CAP036337; Closeout Items EAR-2000-0345 - Q-List Interpretations
CAP038956; Inadequate Documentation of Justification for Design Change

Piping and Instrument Diagrams

M-202; Sheet 1B; Chemical and Volume Control System; Revision 50
M-208; Sheet 1A; Service Water System; Revision 52
M-221; Sheet 2; Spent Fuel Pool Cooling System; Revision 50

1R19 Post Maintenance Testing

Work Orders

WO24322197; Service Water Pump P-7C; October 29, 2003
WO24323161; EDG 1-2 K-6B Starting Air Pressure Control; September 29, 2003
WO24321782; EDG Air Starting Motor (ASM-2B); September 29, 2003
WO24213350; Replace SV-1452 (K-6B/Fuel Oil); September 29, 2003
WO24323928; Wire '1B' on Terminal Block 'TC' Pinched; September 30, 2003
WO24112283; EDG 1-2 to Bus 1D; September 30, 2003
WO24213073; EDG 1-2 Air Start Motor ASM-2A Isolation; September 29, 2003
WO24113680 Attachment B; functional Test of Breaker 152-111

Plant Procedures

SWS-M-12; Service Water Pumps P-7A, P-7B and P-7C Repack; Revision 1
MO7A2; Emergency Diesel Generator 1-2; Revision 56
SOP-22; Emergency Diesel Generators; Revision 35
QO-20B; Inservice Test: Low Pressure Safety Injection Pumps; Revision 12

Miscellaneous Documents

Final Safety Analysis Report, Section 6.1; Safety Injection System; Revision 23
Technical Specifications 3.5.2; Emergency Core Cooling System
Technical Specifications Bases 3.5.2; Emergency Core Cooling System

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP038299; Siemens Breaker S/N R-300511A-8 Failed to Close During Testing
CAP038302; Insufficient Cooling for Packing on Service Water P-7C After Repack
CAP038317; Service Water Pump Repacked With Larger Than Required Packing
CAP038320; Maintenance Violated the Procedural Step Requirement in Step 5.3.2 in SWS-M-12

1R22 Surveillance Testing

Completed Surveillance Test Procedures

QO-1; Safety Injection System; Revision 49
MO-33; Control Room Ventilation Emergency Operation; Revision 9
QO-14; Inservice Test Procedure - Service Water Pumps; Revision 21

Miscellaneous Documents

FSAR 7.3; Engineered Safeguards Controls; Revision 23
Reg Guide 1.52; Design, Inspection and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident ESF Atmosphere Cleanup System in Light Water-Cooled Nuclear Power Plants; Revision 3
NUREG/CR-496; Control Room Habitability Survey of Licensed Commercial Nuclear Power Generating Stations

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP038044; Unexpected Containment Air Cooler Service Water System Leak Alarm Received During QO-1 SIS Testing
CAP038110; Missed Sign Off for AC&O Sheet in Body of Procedure

Condition Reports Reviewed to Assess Corrective Actions

CAP037153; Palisades Control Room Habitability Not in Complete Conformance With NRC Guidance

1REP Equipment Availability and Functional Capability

Maintenance Effectiveness

Plant Procedures

WI-ESS-O-02; Containment Spray Pump/Motor Oil Sample and Change; Revision 0
ESS-E-36; Component Cooling and Containment Spray Motor Maintenance; Revision 6
VTD-0322-0005; Louis-Allis Co. Instruction Manual for Large Motors
EGAD-EP-10; Maintenance Rule Scoping Document for 2400V AC Power and 4160V AC Power Systems; Revision 2

Miscellaneous Documents

Containment Spray Pump Motor Oil Change Out History
Daily Checklists for Painting Floors/Walls/Equipment
Palisades Maintenance Rule Performance Indicators for 2400V AC Power and 4160V AC Power Systems
Palisades Maintenance Rule Performance Monitoring Results for 2400V AC Power and 4160V AC Power Systems

Health and Status Report for 2400V AC Power and 4160V AC Power Systems
FSAR; Chapter 8, Electrical Systems; Revision 23

Work Orders

PPAC X-OPS310; EEQ Required P-54A, B, C Motor Oil Change and Containment Spray Pump Motor Oil Change P-54A, B, C
WO24320008; Miscellaneous Mechanical System Work

Condition Reports Reviewed to Assess Maintenance Rule Evaluations and Corrective Actions

CAP037180; Smoke Observed Coming From Containment Spray Pump P-54C Inboard Motor Bearing
CAP034584; Undervoltage Relays on 'F' and 'G' Busses Failed to Reset
CAP031363; Breaker 152-306 Failed to Close From Control Room

Biennial Assessment of Maintenance Rule Periodic Evaluations

Miscellaneous Documents

EGAD-EP-10, Attachment 2; Maintenance Rule Scoping Document For Concentrated Boric Acid System, Control Room HVAC System, High Pressure Air System and the Fire Protection System; Revision 2
Health and Status Reports for Concentrated Boric Acid System, Control Room HVAC System, High Pressure Air System and the Fire Protection System
Palisades Plant - Maintenance Rule Periodic Refueling Assessment; August 21, 2000 to July 31, 2002

Condition Reports Reviewed to Assess Maintenance Rule Evaluations and Corrective Actions

CAP036655; Received EK-0726 "Boric Acid Pumps P-56A and P-56B Overload" Unexpectedly

Condition Reports Reviewed to Assess Corrective Actions

CAP036114; Boric Acid Availability Does Not Meet Maintenance Rule Criteria
CAP03583; Maintenance Rule Performance Criteria Exceeded for Control Room HVAC System
CAP015712; Unusual Noise and Smoke Coming from VC-11, Control Room HVAC condensing unit
CAP031618; Door 16 Mechanical Equipment Room Results in TS3.7.10 A/B Entry
CAP032834; Inoperable B Train Control Room Ventilation Cooling
CAP034899; Control Room Cooling Train (VC-11) Inoperable
CAP031633; High Pressure Air Compressor C-6A Inoperable Due to Failed Oil Level Switch
CAP037303; Oil Cap Unsecure On High Pressure Air Compressor C-6C
CPAL990984; Maintenance Rule Category (a)(1) Performance Improvement of the High Pressure Air System
CAP031907; Evaluate Returning P-9B to Maintenance Rule Category (a)(2)

CAP029995; Fire Pump P-9B Unavailability Exceeds Maintenance Rule Performance Indicators
CPAL0200457; Fire Protection Maintenance Preventable Functional Failure of Electric Fire Pump P-9A Exceeds Performance Criteria
CPAL0200497; Electric Fire Pump P-9A Fails to Meet Maintenance rule Availability Requirements
CPAL0200059; Fire Pump P-9A Tripped After Running For Approximately 3 Minutes
CAP032600; Fire Protection System Exceeds Maintenance Rule Reliability Performance Criteria
CAP033278; Compressor Related System Performance Issues
CAP032927; Weakness in Timely Resolution of Maintenance Rule (a)(1) Issues
CAP033280; Maintenance Rule Availability Performance Criteria Limitations in the Scheduling Process

Operability Evaluations

Plant Procedures

EM-18-02; Interim Operability Criteria Evaluation For Palisades Plant Safety-Related Piping Systems; Revision 1

Condition Reports Associated with Operabililty Determinations

CAP038087; Change the Source CAP for the Operable But Degraded Piping Feeding CVCS [Chemical Volume Control System]
CAP032550; Steam Generator Low Pressure Bypass Not Calibrated in Appropriate Direction
CAP037030; Subcooling CV-3070 Failed to Open During QO-5 Valve Test Procedure

Miscellaneous Documents

Final Safety Analysis Report; Section 5.10.1.4; Interim Operability Criteria; Revision 21
Technical Specifications 3.3.3; Engineered Safety Features Instrumentation
Final Safety Analysis Report; Section 7.2.3.8; Low Steam Generator Pressure; Revision 23

Condition Reports Reviewed to Assess Corrective Actions

CAP030037; Incorrect Operability Determinations

Operator Workarounds

Plant Procedures

Admin Proc No 4.12; Operator Work-Around Program; Revision 1

Miscellaneous Documents

Palisades Operator Workarounds List; as of October 29, 2003
Operations Concerns List; as of October 29, 2003
Control Room Deficiencies List; as of October 29, 2003
Palisades Operations Concerns List; as of October 29, 2003
Aggregate Assessment Factor; as of June 30, July 24, August 15, September 19 and October 27, 2003

Temporary Plant Modifications

Plant Procedures

SOP-15, Attachment 11; Alternate Water Supply to Clean Traveling Screens; Revision 32

Modification Documents

EDC-TM-2000-024-03; Engineering Design Change for TM-2000-024; 50.59 Screen; November 13, 2003
TM-2000-024; Temporary Modification, Alternate Supply of Water to Traveling Screens; November 11, 2003

1EP4 Emergency Action Level and Emergency Plan Changes

Palisades Nuclear Plant Site Emergency Plan; Revisions 5, 6, 7, and 8

1EP6 Emergency Preparedness Drill Evaluation

Plant Procedures

EI-3, Attachment 1; Palisades Event Notification Form; Revision 19
EI-1; Emergency Classifications and Actions; Revision 42
EI-3; Communications and Notifications; Revision 19

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP039186; Investigate Potential Missed Drill / Exercise Performance Opportunity

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

SurvivAir SCBA Maintenance Record File for OCR-42 (including cylinder hydrostatic test data); dated through August 6, 2003
SurvivAir SCBA Maintenance Record File for RPO-11 (including cylinder hydrostatic test data); dated through August 4, 2003
SurvivAir SCBA Maintenance Record File for T625-47 (including cylinder hydrostatic test data); dated through August 6, 2003

HP 7.5; Self-Contained Breathing Apparatus (SCBA) SurvivAir Mark-2 Model 9842; Revision 4
HP 7.6; Inspection and Testing of SurvivAir (SCBA) Breathing Air Cylinders ; Revision 4

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

2001 Annual Radioactive Effluent and Waste Disposal Report; dated March 26, 2002
2002 Annual Radioactive Effluent and Waste Disposal Report; dated March 24, 2003
Calibration File for High Purity Germanium Detector #1 (S/N 6983983); dated January 9, 1999
Calibration File for High Purity Germanium Detector #2 (S/N 1924); dated May 13, 1999
Calibration File for High Purity Germanium Detector #3 (S/N 1221); dated January 9, 1999
Palisades Final Safety Analysis Report (FSAR), Chapter 11; Radioactive Waste Management and Radiation Protection; Revision 24
Quarterly Liquid and Gaseous Release Calculations (LADTAP and GASPAR Results) for 3rd Quarter 2001, 2nd and 4th Quarter 2002, and 1st through 3rd Quarter 2003; dated October 3, 2001, July 2, 2002, and January 9, April 5, July 3, September 26, 2003
Results of Radiochemistry Cross Check Program (Analytics), Consumers Power Company, Palisades Nuclear Plant, 2nd Quarter 2003; dated November 10, 2003
Results of Radiochemistry Cross Check Program (Analytics), Consumers Power Company, Palisades Nuclear Plant, 3rd Quarter 2003; dated November 10, 2003
Special Report of Inoperability of One Channel of Stack Gas Effluent System; dated September 4, 2003
Special Report of Inoperability of One Channel of Stack Gas Effluent System - Hi Range Noble Gas Monitor RIA-2327; dated September 20, 2002
ANSI N13.1-1969; Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities; dated February 19, 1969
CAP 033600/ACE 002935; Higher than Expected Noble Gas Activity During Breach of Waste Gas System; dated February 26, 2003
CAP 036988/MRE 000158; Radioactive Gas Effluent Monitoring System Tripped; dated August 6 and 11, 2003
CAP 037027; Counting Geometry Unavailable; dated August 10, 2003
CAP 037574; Clarification/Enhancement Needed for ODCM Compensatory Measures; dated September 15, 2003
CAP 039097; Question Concerning Plant Stack Sample Line; dated December 17, 2003
CAP 039128; Evaluate Sampling/Handling of the Weekly Plant Stack Effluent Sample Media; dated December 18, 2003 [NRC-Identified Issue]
CH 4.39; Gamma Ray Spectroscopy System; Revision 14
CE 005907; I-131 Release During 2003 Re-Fueling Outage Higher Than 2001 Re-Fueling Outage; dated June 9, 2003
DWR-10; Stack Effluent Sampling, Calculations, and Records; Revision 22
Gaseous Release Batch 03-052ST; Week 52 of CY2003 Stack Release Calculations; dated December 17, 2003
Gaseous Release Batch 03-052-G; Waste Gas Decay Tank T-101A Release Calculations; dated December 18, 2003
Gilbert/Commonwealth System Design No. 771; Post-Accident Monitoring - Palisades Plant, Radioactive Gaseous Effluent Monitoring; dated September 8, 1982

HP 6.4; Radioactive Liquid Calculation and Release Authorization; Revision 23
HP 6.5; Sampling Waste Gas Decay Tank; Revision 12
HP 6.6; Evaluation and Release of Waste Gas Decay Tank; Revision 16
Liquid Release Batch 02-024-R; T-90 Tank Release; dated October 21, 2002
Liquid Release Batch 03-001-R; T-91 Tank Release; dated January 14, 2003
Liquid Release Batch 03-011-R; T-91 Tank Release; dated April 17, 2003
Nuclear Oversight Observation Report No. 2003-001-8-013; Radiological Environmental Monitoring Program: Process Monitor Function Checks, Milk Sample Collection, Waste Gas Decay Tank, and Stack Gas Analysis; dated March 18, 2003
Nuclear Oversight Observation Report No. 2003-001-8-067; Review of the Radiological Environmental Monitoring Program and Radiological Environmental Technical Specifications; dated April 23, 2003
ODCM; Palisades Nuclear Plant Offsite Dose Calculation Manual; Revisions 17 and 18
RR-9B; Radwaste Discharge Monitor (RIA-1049) Calibration; dated July 28, 2003
RR-84A; Radioactive Gaseous Iodine/Part Effluent Monitor RIA-2325 Calibration; dated August 6, 2002
RR-84B; Radioactive Noble Gas Effluent Monitor RIA-2326 Calibration; dated August 19, 2002
RR-84C; High Range Noble Gas Effluent Monitor (RIA-2327) Calibration; dated December 10, 2002
Self-Assessment Report I03-33; Radiological Effluent Monitoring - Pre NRC Assessment; dated October 21, 2003

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

Environmental Department Meteorological Equipment Temperature / Delta-T Calibration Form, T/TD-1 (60M); dated September 10, 2003
Environmental Department Meteorological Equipment Wind Speed Calibration Form, WS-1 (10A); dated September 10, 2003
Environmental Department Meteorological Equipment Wind Direction Calibration Form, WD-1 (10A); dated September 10, 2003
Environmental Department Meteorological Equipment Wind Speed Calibration Form, WS-1 (10B); dated September 8, 2003
Environmental Department Meteorological Equipment Wind Direction Calibration Form, WD-1 (10B); dated September 8, 2003
Environmental Department Meteorological Equipment Wind Speed Calibration Form, WS-1 (60M); dated September 10, 2003
Environmental Department Meteorological Equipment Wind Direction Calibration Form, WD-1 (60M); dated September 10, 2003
Palisades Nuclear Plant 2002 Annual Radiological Environmental Operating Report; dated May 12, 2003
Palisades Nuclear Plant Offsite Dose Calculation Manual; Revision 17
Palisades Nuclear Plant Offsite Dose Calculation Manual, Appendix A, “Relocated Technical Specifications per NRC Generic Letter 89-01 (TAC No. 75060)”; Revision 10
Palisades Part 61 Isotopic Analysis Results Evaluated for Hard-to-Detect Nuclides; dated November 13, 2002
Palisades Personnel Contamination Monitor (PCM-2) Commissioning Study; dated February 17, 2003
Palisades Personnel Contamination Monitor (PCM-2) Sum Zone Setup and Operation;

dated March 6, 2003
Radiological Environmental Monitoring Program - Pre NRC Assessment; dated October 21, 2003
AP 7.15; Contamination Control; Revision 9
EA-JBB-99-001; Plant Radionuclide Mixture and Calibration Sources; dated March 10, 1999
Form 116; Gas Meter Test and Repair (for Air Sampling Stations 1 - 12); dated November 22, 2002 through September 19, 2003
HP 9.80; Operation and Calibration of the SAM9; Revision 1
HP 10.1; Radiological Environmental Monitoring Program Surveillance; Revision 8
MM-121; Meteorological Monitoring Project Plan; dated June 8, 1998
Nuclear Oversight Observation Report No. 2003-001-8-013; Radiological Environmental Monitoring Program: Process Monitor Function Checks, Milk Sample Collection, Waste Gas Decay Tank, and Stack Gas Analysis; dated March 18, 2003
Nuclear Oversight Observation Report No. 2003-001-8-067; Review of the Radiological Environmental Monitoring Program and Radiological Environmental Technical Specifications; dated April 23, 2003
SR-2001-341; Nuclear Utilities Procurement Issues Committee (NUPIC) Joint Quality Assurance Program Audit Report (of Environmental, Incorporated); dated July 27, 2001
Updated/Final Safety Analysis Report Chapter 2; Section 2.5.2, "Meteorological Program History;" Revision 22
WI-RSD-H-010; Release of Items; Revision 6

4OA1 Performance Indicator Verification

DWO-1, Attachment 8; Primary Coolant System Inventory Form; October 2002 through September 2003
Licensee Report of Monthly Operating Data; Palisades Nuclear Plant; October 2002 through September 2003
NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 2
Chemistry Department Analyses Database for DEI-131 versus Reactor Power; dated July 1, 2002 through June 30, 2003
COP-1; Primary Coolant System Chemistry, Attachment 19; Revision 52
DWC-2; PCS Radiochemistry Analysis; Revision 18
NRC Indicator RETS/ODCM Radiological Effluent Occurrence (PR-01); dated 3rd Quarter 2002, January 9, April 5, July 3, and September 26, 2003

Condition Reports Reviewed to Assess Significance Characterization of Problems

CAP038667; NRC PI Database Not Corrected With Revised Data

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

ACE003132; Apparent Cause Evaluation; Subcooling Valve CV-3070 Failed to Open During QO-5 Valve Test Procedure

WO24412938; Work Order, High Pressure Safety Injection P-66B Subcooling; July 11, 1995
ESS-M-40; Permanent Maintenance Procedure; Maintenance of Miller Operators for High Pressure Safety Injection Subcooling Valves CV-3070 and CV-3071

4OA3 Event Follow-up

CAP038019, Re-assess Timing of CRS Fan V-4A Inoperability with Regard to Reportability

LIST OF ACRONYMS USED

AA	Access Authorization
ARM	Area Radiation Monitor
CAM	Continuous Air Monitor
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DEI	Dose Equivalent Iodine
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EAL	Emergency Action Level
EAR	Engineering Assistance Request
LER	Licensee Event Report
LLD	Lower Limit of Detection
NCV	Non-Cited Violation
NMC	Nuclear Management Company
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
RCA	Radiologically Controlled Area
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RETS	Radiological Effluent Technical Specifications
RGEM	Radiological Gaseous Effluent Monitoring
RPS	Reactor Protection System
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SM&CS	System Maintenance and Construction Services
SQUG	Seismic Qualification Utility Group
TLD	Thermoluminescent Dosimeter
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item