

October 30, 2003

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 INTEGRATED INSPECTION REPORT 05000255/2003006

Dear Mr. Malone:

On September 30, 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 October 9, 2003, 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, four findings of very low safety significance (Green) were identified, which were determined to involve violations of NRC requirements. However, because these violations were of very low safety significance and because they 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 within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 801 Warrenville Road, Lisle, IL 60532-4351; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Palisades facility.

D. Malone

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Sincerely,

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

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

Enclosure: Inspection Report 05000255/2003006  
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000255/2003006

Licensee: Nuclear Management Company, LLC

Facility: Palisades Nuclear Generating Plant

Location: 27780 Blue Star Memorial Highway  
Covert, MI 49043-9530

Dates: July 1 through September 30, 2003

Inspectors: J. Lennartz, Senior Resident Inspector  
M. Garza, Resident Inspector  
R. Alexander, Radiation Specialist Inspector

Approved by: E. R. Duncan, Chief  
Branch 6  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000255/2003006; 07/01/2003 - 09/30/2003; Palisades Nuclear Generating Plant; Operability Evaluations; Radiation Protection.

This report covers a 3-month period of baseline resident inspections and a routine baseline radiation protection inspection. The inspections were conducted by the resident inspectors and a regional radiation specialist inspector. Four 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 (IMC) 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 and Self-Revealed Findings

#### **Cornerstone: Barrier Integrity**

- Green. A finding of very low safety significance was self-revealed when the Containment Air Cooler Fan V-4A motor bearing failed and the fan tripped unexpectedly on July 1, 2003, after the fan was declared operable and returned to service following emergent repairs on June 20, 2003. A lack of rigor in the technical evaluation to determine the operability for Fan V-4A on June 20 resulted in the fan being declared operable and returned to service with more significant motor bearing degradation than recognized by licensee personnel. The primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution.

The finding was more than minor because the finding was associated with the Human Performance attribute of the barrier integrity cornerstone and adversely impacted the cornerstone objective to provide reasonable assurance that the containment barrier protect the public from radionuclide releases caused by accidents or events. The finding was of very low safety significance because there was no adverse impact on the physical integrity of reactor containment and there was no adverse impact on the atmospheric pressure control function of the reactor containment. Corrective actions to address the issue included replacing the motor for Fan V-4A and entering all containment air cooler fans and motors into a predictive maintenance program. One Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified. (Section 1R15)

#### **Cornerstone: Occupational Radiation Safety**

- Green. A finding of very low safety significance was self-revealed when two workers entered a high radiation area to move a drum and trash bags of radioactive material out of the area without obtaining a briefing regarding the radiological conditions in the area.

The issue was associated with the Human Performance attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material because the workers were not sufficiently cognizant of the radiation fields they could have encountered while inside the high radiation area. The finding was of very low safety significance because the radiological conditions the workers could have encountered were not sufficient to produce a substantial potential for an exposure in excess of regulatory limits. To address this issue, the individuals involved were administratively precluded from entering the Radiologically Controlled Area for the remainder of the outage. Additionally, training to reinforce radiation protection standards and expectations was provided to radiation workers. One Non-Cited Violation for the failure to meet the requirements of Technical Specification 5.7.1.e for the conduct of pre-entry high radiation area briefings was identified. (Section 2OS1.5)

- Green. A finding of very low safety significance was self-revealed when a worker failed to stop work and contact radiation protection personnel upon receiving an electronic dosimetry dose rate alarm while rigging a drum of radioactive material to be removed from a posted high radiation area.

The issue was associated with the Human Performance attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material because the failure to appropriately act upon hearing the alarm was a failure of the radiation safety barrier against unplanned and unintended radiation exposures. The finding was of very low safety significance because the dose rates encountered and the worker's short time period within the dose rate field were not sufficient to produce a substantial potential for an exposure in excess of regulatory limits. To address this issue, the individuals involved were administratively precluded from entering the Radiologically Controlled Area for the remainder of the outage. Additionally, training to reinforce radiation protection standards and expectations was provided to radiation workers. One Non-Cited Violation for the failure to meet the requirements of Technical Specification 5.7.1.b regarding the control of activities in a high radiation area through a radiation work permit was identified. (Section 2OS1.5)

- Green. A finding of very low safety significance was self-revealed when a drum and trash bags of radioactive material were moved and created an unposted and unbarricaded high radiation area.

The issue was associated with the Human Performance and Program and Process attributes of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material because the uncontrolled high radiation area created the potential for unplanned and unintended dose to individuals working in the proximity of the drum and trash bags. The finding was of very low safety significance because the dose rates were not sufficient to produce a substantial potential for an exposure in excess of regulatory limits. Upon discovery, the licensee took immediate corrective actions to properly post the high radiation area. Additionally, further surveys were conducted to verify that no other unknown radiological conditions existed. One Non-

Cited Violation for the failure to meet the requirements of Technical Specification 5.7.1.a regarding barricading and posting a high radiation area was identified. (Section 2OS1.5)

**B. Licensee Identified Findings**

None.



## REPORT DETAILS

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

### Summary of Plant Status

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

- On July 1, 2003, Main Turbine Stop Valve #2 inadvertently closed which resulted in a slight loss of load on the main generator and subsequent decrease in reactor power to 95 percent. Control room operators subsequently decreased reactor power to 87 percent. On July 6, 2003, after troubleshooting and necessary repairs were completed, control room operators re-opened Main Turbine Stop Valve #2. Reactor power was subsequently raised to full power on July 7, 2003.

### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Inspection Scope

On July 7, 2003, control room operators received reports of severe thunderstorm warnings which included forecasted high wind gusts. The inspectors verified that prescribed actions in Off Normal Operating Procedure 12, "Acts of Nature," were implemented as required for the predicted high wind conditions.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment (71111.04)

##### .1 Quarterly Equipment Alignment Walkdowns

##### a. Inspection Scope

The inspectors performed three partial equipment alignment walkdowns of the following plant equipment:

- High Pressure Air System in the East Safeguards Room
- Emergency Diesel Generator 1-2
- High Pressure Safety Injection Pump P-66A

The inspectors performed the walkdowns to verify proper system lineup while redundant plant equipment was out of service. For the systems walked down, the inspectors verified that power was available, that accessible equipment and components were appropriately aligned, and that no discrepancies existed which would impact system function. Portions of the system alignment inspection included discussions and system walkdowns with operations and engineering personnel.

The inspectors also reviewed select condition reports related to equipment alignment issues 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 Semiannual Equipment Alignment Walkdowns

a. Inspection Scope

The inspectors performed one complete walkdown inspection of the Critical Service Water System utilizing piping and instrumentation diagrams, system operating procedures, and system checklists to verify that accessible system components were correctly aligned. The inspectors also reviewed open maintenance work orders to verify that the equipment's safety function was not adversely impacted.

The inspectors also reviewed select condition reports associated with the Critical Service Water System 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 (71111.05Q)

a. Inspection Scope

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

- West Safeguards Room (Fire Area 28)
- 1D Switchgear Room (Fire Area 3)
- Emergency Diesel Generator 1-2 Room (Fire Area 6)
- Battery #2 Room (Fire Area 11)
- Spent Fuel Pool Area (Fire Area 17)
- Safety Injection and Refueling Water Tank/Component Cooling Water Roof Area (Fire Area 32)

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

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 (71111.06)

a. Inspection Scope

The inspectors performed one internal flood protection features inspection for the east engineered safeguards room which contained risk significant safety-related plant equipment.

The inspectors conducted walkdowns and design reviews, including reviews of preventive maintenance activities, for the following attributes associated with the room:

- Sealing of equipment below the floodline, such as electrical conduits;
- Holes or unsealed penetrations in floors and walls between flood areas;
- Adequacy of watertight doors between flood areas; and
- Common drain system and sumps, including floor drain piping and check valves where credited for isolation of flood areas within plant buildings.

The inspectors also assessed condition reports related to flood protection issues to verify 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.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

The inspectors observed one crew of reactor and senior reactor licensed operators during simulator training on September 17, 2003. The inspectors assessed the operators' ability to use Off-Normal and Emergency Operating plant procedures to mitigate the following events:

- loss of main generator automatic voltage control;
- sequential loss of three offsite power sources to the switchyard due to inclement weather with a subsequent loss of offsite power;
- plant trip due to loss of offsite power concurrent with a failure of Emergency Diesel Generator 1-1; and
- subsequent loss of Emergency Diesel Generator 1-2 resulting in a station blackout condition.

The inspectors also observed the post-scenario critique to assess the licensee evaluator's and the crew's ability to self-identify performance weaknesses.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

.1 Waste Gas Compressor C-50A Outage

a. Inspection Scope

The inspectors conducted one maintenance effectiveness inspection associated with the Waste Gas Compressor C-50A outage after a self-revealed tagging error resulted in work commencing prior to component cooling water to the compressor being appropriately isolated. The inspectors reviewed the activities and documentation associated with the work, including planning and scheduling; control room logs; and work order summaries. The inspectors assessed if the tagging error resulted in an adverse impact on the component cooling water system for which mitigating actions were required by the control room operators. The inspectors also reviewed other tagging orders for scheduled work on Compressor C-50A to determine if Administrative Procedure 4.10, "Personnel Protective Tagging," requirements had been followed.

The inspectors searched corrective action documents to determine if there was an adverse trend related to inadequate tagging during maintenance activities. In addition, the inspectors reviewed Condition Report CAP036557, "Incomplete Tagging Associated With Work on Waste Gas Compressor C-50A," to verify that the issue was entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

.2 Routine Maintenance Rule System Reviews

a. Inspection Scope

The inspectors conducted maintenance effectiveness inspections on the following two systems to assess the licensee's maintenance rule program:

- Component Cooling Water System
- Chemical Volume and Control System

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

Further, the inspectors reviewed selected condition reports and associated maintenance rule evaluations to verify that 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

No findings of significance were identified.

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

a. Inspection Scope

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

- Scheduled maintenance activities for Containment Spray Pump P-54B, High Pressure Air Compressor C-6B and Emergency Diesel Generator 1-1 Testing concurrent with emergent work activities associated with Emergency Diesel Generator 1-1 on July 21-25, 2003;
- Scheduled maintenance on Emergency Diesel Generator 1-2 on August 6-7, 2003;

- Emergent activities associated with High Pressure Safety Injection Pump P-66B Subcooling Control Valve CV-3070 and the loss of the electrical transmission grid that occurred on the East Coast during the week of August 11, 2003; and
- Scheduled maintenance activities on Emergency Diesel Generator 1-1 on September 16-17, 2003.

b. Findings

No findings of significance were identified.

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

.1 Operator Response to Loss of Load

a. Inspection Scope

The inspectors observed operator response to an unexpected closure of Turbine Stop Valve #2 on July 1, 2003. The inspectors also verified that the actions prescribed in Off Normal Procedure 1, "Loss of Load," were appropriately implemented.

b. Findings

No findings of significance were identified.

.2 Operator Response to Automatic Start of Both Emergency Diesel Generators Due to the Loss of Grid on the East Coast

a. Inspection Scope

On August 14, 2003, the inspectors observed the operator response to the automatic start of Emergency Diesel Generators 1-1 and 1-2 which resulted from the voltage drop on the 2140 Volt safety busses due to the loss of the electrical transmission grid on portions of the east coast of the United States and parts of Canada. The inspectors walked down the control panels to verify that plant equipment responded as designed and that the off site power sources to the plant switchyard remained available.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15Q)

a. Inspection Scope

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

- Service Water System;
- Containment Sump Check Valve CK-ES3181;

- Containment Air Cooler Fan V-4A; and,
- Charging Pump P-55A.

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.

b. Findings

The inspectors identified one finding of very low safety significance (Green) pertaining to Containment Air Cooler Fan V-4A.

Introduction

The inspectors determined that a finding of very low safety significance (Green) and associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was self-revealed when Containment Air Cooler Fan V-4A tripped unexpectedly on July 1, 2003, after licensee personnel declared the fan operable on June 20, 2003, following emergent repairs.

Description

On June 19, 2003, during a routine containment entry, an Auxiliary Operator discovered loose parts which included nuts, bolts, and a washer, under safety-related Containment Air Cooler Fan V-4A and noted elevated noise levels from the fan. Licensee personnel subsequently determined that the loose parts were fasteners from the fan ductwork and the noise was from the loose ductwork. Consequently, Fan V-4A was declared inoperable due to concerns regarding the integrity of the ductwork during a seismic event.

The licensee reinstalled the loose fasteners on June 20, 2003, to re-establish the ductwork integrity. Following these repairs, licensee personnel obtained Fan V-4A motor current readings which were found to be higher than previous readings, but considered acceptable. Vibration data was also obtained from the fan housing and was considered high when compared to general industry standards, however no comparable baseline vibration data existed for this fan. Licensee personnel also manually rotated the fan and noted that the fan would not rotate without the use of continuous manual force. Consequently, licensee personnel suspected bearing degradation in the fan motor, but concluded that bearing failure was not imminent.

Fan V-4A was subsequently declared operable and returned to service on June 20, 2003. The operability determination was based on information obtained from the visual inspections, the fan motor current readings, and the vibration data from which licensee personnel concluded that Fan V-4A could be returned to service and imminent failure would not occur. However, on July 1, 2003, Containment Air Cooler Fan V-4A tripped

unexpectedly due to a failed motor drive end bearing and Fan V-4A was again declared inoperable.

Technical Specification 3.6.6, "Containment Cooling Systems," Condition "A" was entered which required that Fan V-4A be returned to an operable status within 72 hours. However, because planned repairs for Fan V-4A required more than 72 hours, enforcement discretion to complete the repairs with the plant on-line and avoid a plant shutdown was requested by licensee personnel and granted by the NRC on July 3. The Notice of Enforcement Discretion is discussed in Section 4OA5 of this report. Licensee personnel subsequently completed the necessary repairs and Fan V-4A was declared operable on July 6, 2003.

The inspectors noted that when the fan was declared operable on June 20, 2003, that there was no formal operability recommendation form completed, which would have required a more technically rigorous operability evaluation than was performed. Therefore, the inspectors concluded that the lack of rigor in the technical evaluation to determine operability for Fan V-4A on June 20 led to a non-conservative operability determination. Consequently, Fan V-4A was declared operable and returned to service with more significant motor bearing degradation than was recognized by licensee personnel which rendered the fan incapable of performing the required safety function of containment atmosphere air mixing for 30 days following a design basis accident.

#### Analysis

The inspectors determined that the lack of rigor in the operability determination completed on June 20 for Fan V-4A was a licensee performance deficiency warranting a significance evaluation. The Barrier Integrity cornerstone was impacted by this issue. The inspectors reviewed the samples of minor issues in Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues" and determined that there were no examples that appropriately described this issue. The inspectors determined that the finding was more than minor in accordance with IMC 0612, Appendix B, "Issue Disposition Screening," because it was related to the Human Performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that the containment physical design barrier protects the public from radionuclide releases caused by accidents because Fan V-4A was unable to perform its associated safety function when returned to service on June 20. This finding was also associated with the cross-cutting area of Problem Identification and Resolution which is briefly discussed in Section 4OA4 of this report.

The inspectors 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 only the Barrier Integrity column on the worksheet, the inspectors determined that the finding (1) did not represent only a degradation of the radiological barrier function provided for the control room, or auxiliary building, or spent fuel pool; (2) did not represent a degradation of the barrier function of the control room



against smoke or a toxic atmosphere; and (3) 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. Therefore, the finding screened out as Green and was considered to be of very low safety significance.

### Enforcement

10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this, the extent of motor bearing degradation on safety-related Containment Air Cooler Fan V-4A, a condition adverse to quality, was not identified and promptly corrected after the condition was initially discovered on June 19, 2003. Consequently, Fan V-4A was declared operable and returned to service on June 20, 2003, and subsequently tripped on July 1, 2003, because the motor bearing failed. Therefore, Fan V-4A would not have been able to perform its safety function to ensure proper mixing of the containment atmosphere following a design basis accident for 30 days.

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 05000255/2003006-01).

The licensee entered the issue into the corrective action program as CAP036444 and CAP036565. A root cause evaluation was also completed. Corrective actions to address the issue included replacing the motor for Fan V-4A and entering all containment air cooler fans and motors into a predictive maintenance program.

## 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 seven activities:

- Containment Air Cooler Ventilation Fan V-4A
- Auxiliary Feedwater Pump P-8A Breaker 152-104 Replacement
- Auxiliary Feedwater to "A" Steam Generator Control Valve CV-0749
- Emergency Diesel Generator 1-2
- Containment Spray Pump P-54C Breaker 152-114 Replacement
- High Pressure Safety Injection Pump P-66B Subcooling Control Valve CV-307
- Emergency Diesel Generator 1-1.

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 (1) post maintenance testing criteria to verify that the test criteria and acceptance criteria were appropriate for the scope of work performed; (2) completed tests and associated procedures to verify that the tests adequately verified system operability; and (3) documented test data to verify that the data was complete and that the equipment met the testing acceptance criteria.

The inspectors also reviewed condition reports to verify that post maintenance testing problems were entered into the corrective action process with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- ED-01 and ED-02 Station Battery Checks
- Auxiliary Feedwater Automatic Initiation
- Emergency Diesel Generator 1-2 Load Rejection
- ATWS (Anticipated Transient Without Scram) Functional Testing

The inspectors observed portions of the testing in the plant 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 planned and completed corrective actions were appropriate.

b. Findings

The inspectors identified one Unresolved Item pertaining to ATWS system testing.

## Introduction

The inspectors identified an Unresolved Item related to the failure to functionally test the ATWS system circuitry which provided an automatic start signal to Turbine Driven Auxiliary Feedwater Pump P-8B.

## Description

In 1990, the licensee completed a plant modification which installed ATWS equipment as described in Updated Final Safety Analysis Report, Section 7.2, to satisfy the 10 CFR 50.62 ATWS rule. Included in the modification was circuitry to provide an automatic start signal to Turbine Driven Auxiliary Feedwater Pump P-8B on a loss of direct current (DC) control power.

While reviewing surveillance testing for the Auxiliary Feedwater System, the inspectors questioned licensee personnel regarding which procedure tested the ATWS system function to automatically start Pump P-8B and when testing was last completed. Licensee personnel subsequently determined that the function had not been tested since the 1999 refueling outage and generated Condition Report CAP036974, "Failure to Perform ATWS Steam Driven Aux Feedwater Pump Test RPS-I-10," which was entered into the corrective action program and required a condition evaluation.

Through the evaluation, licensee personnel determined that in 1991, a commitment was made to the NRC to implement periodic surveillance testing of the ATWS system and to implement end to end functional testing of the system during refueling outages. The NRC opened Unresolved Item (50-255/91002-01(DRS)) pending review of the licensee's proposed ATWS system testing. The licensee's commitment and the associated unresolved item were documented in Inspection Report 50-255/91002(DRS).

Licensee personnel subsequently developed and implemented ATWS system test procedures in 1991 and Unresolved Item 50-255/91002-01(DRS) was closed as documented in Inspection Report 50-255/94004. From the time that the ATWS system test procedures were developed through the 1999 refueling outage, the ATWS system function to automatically start Turbine Driven Auxiliary Feedwater Pump P-8B tested satisfactorily in accordance with test procedure RPS-I-8, "Anticipated Transient Without Scram (ATWS)/PORV [Power Operated Relief Valve] High Pressurizer Pressure Actuation Functional Test."

During the 1999 refueling outage, testing activities for the ATWS system function to automatically start Pump P-8B were delayed because plant conditions would not support testing. Similar delays in testing had also occurred during previous outages. As a result, after the 1999 refueling outage, licensee planning and maintenance personnel determined that it would be more efficient to test the ATWS function to automatically start Pump P-8B in a separate procedure instead of testing that function within procedure RPS-I-8. Therefore, Test Procedure RPS-I-10, "Aux Feed Pump K8 Auto Start on Loss of AFAS [Auxiliary Feedwater Actuation Signal] DC Control Power," was developed and issued on May 24, 2000.

However, licensee personnel failed to generate a preventative maintenance activity that scheduled RPS-I-10 during subsequent refueling outages. Consequently, the ATWS system function to automatically start Pump P-8B was not tested during the 2001 and 2003 refueling outages as committed to by the licensee in 1991 and discussed in the Updated Final Safety Analysis Report. Although testing the ATWS system function to automatically start Pump P-8B had not been completed since the 1999 refueling outage, the inspectors reviewed past testing and determined that the automatic start function of Pump P-8B had been completed satisfactorily on all occasions prior to 1999.

During the condition report evaluation, licensee personnel developed the following corrective actions to address this finding:

- Preventive maintenance activity PPAC RPS-023, "Performance of RPS-I-10," was developed to schedule surveillance test RPS-I-10 every refueling outage
- Work Request 296123 was initiated to perform surveillance test RPS-I-10 during the next forced outage of sufficient duration should one occur before the next refueling outage.

The inspectors verified that the preventative maintenance activity and the work request were entered into the licensee's work management system.

This is an Unresolved Item (URI 05000255/2003006-02) pending a review of the ATWS system testing results.

#### 1R23 Temporary Plant Modifications (71111.23)

##### a. Inspection Scope

The inspectors reviewed the modification documentation and the associated 10 CFR 50.59 evaluation for temporary plant modification TM-2003-024, "Open Links to Safety Injection Tank Pressure Control Solenoid Valves."

The inspectors verified that the temporary modification did not adversely impact other safety-related equipment and that the modification was being controlled in accordance with Fleet Modification Procedure FP-E-MOD-03, "Temporary Modifications." The inspectors verified that the temporary modification was implemented in the plant as designed, appropriately controlled, and that required plant drawing and procedure revisions were completed. The inspectors also reviewed post-installation test results to verify that testing was completed satisfactorily and that the impact of the temporary modification on the safety injection tank pressure control valves was adequately evaluated.

In addition, the inspectors reviewed condition reports to verify that temporary modification problems were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

1EP6 Emergency Preparedness Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed activities in the plant simulator, Technical Support Center and the Emergency Offsite Facility during an emergency preparedness drill conducted on September 24, 2003. The inspectors verified that the emergency classifications, notifications to offsite agencies, and protective action recommendations were completed in an accurate and timely manner as required by the emergency plan implementing procedures. The inspectors also verified that the drill was conducted in accordance with the prescribed sequence of events and that the drill objectives were met.

The inspectors observed the post-drill critique in the Technical Support Center to verify that licensee personnel and licensee drill evaluators adequately self-identified drill performance problems. The inspectors also verified that condition reports concerning drill performance problems were generated and entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety (OS)**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed the licensee's occupational exposure control cornerstone performance indicators (PIs) to determine whether or not the conditions surrounding the PIs had been evaluated, and identified problems had been entered into the corrective action program for resolution.

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

## .2 Plant Walkdowns and Radiation Work Permit (RWP) Reviews

### a. Inspection Scope

The inspectors assessed the adequacy of the licensee's internal dose assessment process for two internal exposures of greater than or equal to 50 millirem committed effective dose equivalent for workers involved in the In-Core Instrumentation work activities during the most recent refueling outage.

The inspectors also reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within spent fuel or other storage pools.

These reviews represented two inspection samples; one sample for the review of the adequacy of the licensee's internal dose assessment process and one sample for the review of the licensee's controls of stored radioactive material.

### b. Findings

No findings of significance were identified.

## .3 Problem Identification and Resolution

### a. Inspection Scope

The inspectors reviewed seven corrective action reports related to access controls and two high radiation area radiological incidents. Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

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
8. Implementation/consideration of risk significant operational experience feedback

The inspectors evaluated the licensee's process for problem identification, characterization, and prioritization, and verified that problems were entered into the corrective action program and resolved. For repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies.

These reviews represented two inspection samples; one sample for the review of access control issues and one sample for the review of high radiation area incidents.

b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews

a. Inspection Scope

Radiological work in high radiation work areas having significant dose rate gradients was reviewed to evaluate the application of dosimetry to effectively monitor exposure to personnel and to verify that licensee controls were adequate. Specifically, the inspectors reviewed the licensee's enhanced exposure controls for the non-destructive evaluation of the bare metal reactor vessel head and the steam generator nozzle dam installation and removal work activities conducted during the most recent refueling outage. These work areas involved areas with significant dose rate gradients which increased the necessity of providing multiple dosimeters and/or enhanced job controls.

This represented one inspection sample for the review of radiological work in high radiation work areas having significant dose rate gradients.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance and Radiation Protection Technician Proficiency

a. Inspection Scope

The inspectors reviewed condition reports generated during or since the previous refueling outage which identified that the root cause of the event was related to radiation worker errors or radiation protection technician errors to determine if there was a trend due to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. These problems, along with planned and accomplished corrective actions, were discussed with the Radiation Protection Manager.

These reviews represented two inspection samples; one sample for the reviews related to radiation worker errors, and one sample for the reviews related to radiation protection technician errors.

b. Findings

Introduction

Three self-revealed Green findings and associated Non-Cited Violations (NCVs) were identified when, during the most recent refueling outage, (1) two workers entered a High

Radiation Area without obtaining a briefing regarding the radiological conditions in the area; (2) one of the two workers failed to stop work and report to the Radiation Protection Department when an electronic dosimetry dose rate alarm was received; and (3) radioactive material was moved and created an unposted and unbarricaded High Radiation Area.

#### Description

During the most recent refueling outage, on April 15, 2003, a Containment Area Coordinator (CAC) on the refueling floor (690 foot elevation) was assigned to move trash bags and a drum out of a posted High Radiation Area (HRA). The drum, which was labeled as radioactive material with dose rate information, contained contaminated stud hole plugs and guide pins previously used in the reactor cavity area. The CAC was to contact and obtain RP support for the evolution prior to commencing work. The CAC contacted an RP technician (RPT) on the refueling floor. According to the RPT account after the event, the technician indicated that he was busy and could not support the evolution at the time, but he would contact the CAC later to assist in the evolution. However, the CAC believed that the conversation between the RPT and himself was satisfactory and that he had permission to proceed with the evolution. Shortly thereafter, the CAC obtained the services of a contract worker, and directed the worker to enter the posted HRA where the trash and drum were stored. However, there were no RP personnel in the general area to provide work coverage, nor were any briefings provided to the CAC and worker regarding radiological conditions, expected dose rates, or electronic dosimetry (ED) alarm settings prior to their entry.

The worker encountered difficulties while attempting to place a sling around the drum in preparation for moving the drum outside of the HRA. Subsequently, the worker received an ED dose rate alarm while attempting to move the drum. During the licensee's investigation, the worker indicated that he heard the ED alarm, but did not know what actions were required upon receipt of the dose rate alarm. The worker did not inform the CAC that he had received the alarm nor were any RP personnel immediately contacted about the alarm. Rather, the worker continued working and moved the drum outside of the posted HRA. About 10 minutes later, the CAC moved four bags of trash, which were also labeled as radioactive material with dose rate information, from the posted HRA and placed them in a box adjacent to the drum of radioactive material. During the CAC's movement of the radioactive material trash bags, he also received an ED dose rate alarm, however, during the licensee's investigation of the event, the CAC stated that he did not hear a dose rate alarm while he was moving the trash.

When both workers later exited the radiologically controlled area (RCA) and attempted to log out their EDs, they both received messages to contact RP because they had received dose rate alarms during their entries. According to the licensee's investigation, during initial interviews with the CAC and worker, it became apparent that the workers received their ED dose rate alarms while working in a posted HRA and their subsequent actions of moving the drum and trash resulted in the creation of a new, unposted and unbarricaded HRA on the refuel floor for a period of about 4 hours. The RP staff subsequently took actions to survey, barricade, and post the area around the drum and trash as a HRA, and the two workers were administratively locked out of the RCA for the remainder of the refueling outage.



### Analysis (1)

The inspectors determined that the workers failure to obtain a radiological briefing prior to their entry into the HRA was a performance deficiency warranting a significance evaluation. The Occupational Radiation Safety cornerstone was impacted by this issue. The inspectors reviewed the samples of minor issues in IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," and determined that there were no examples similar to this issue. The inspectors concluded that the finding was of more than minor risk significance in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," since the finding was associated with the Human Performance attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material because the workers were not sufficiently cognizant of the radiation fields they could have encountered while inside the HRA and the issue involved the unplanned and unintended dose, or the potential of such a dose, resulting from actions contrary to Technical Specifications and licensee procedures.

Utilizing IMC 0609, "Significance Determination Process," Appendix C, "Occupational Radiation Safety SDP," the inspectors determined that the finding (1) did not involve ALARA/work controls, (2) did not result in an overexposure, and (3) based on the surveys of the material inside the HRA and length of time the workers spent in the HRA, did not result in a substantial potential for an overexposure or compromise the licensee's ability to assess dose. Consequently, the finding screened out as Green and was of very low safety significance.

### Enforcement (1)

Technical Specification 5.7.1.e requires, in part, that an entry into a High Radiation Area be made only after dose rates in the area have been determined and personnel entering the area are knowledgeable of these dose rates. Contrary to the above, on April 15, 2003, two workers failed to obtain a radiological briefing and become knowledgeable of the dose rates prior to their entry into a High Radiation Area which was a violation of Technical Specification 5.7.1.e. 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 05000255/2003006-03). This violation was entered into the licensee's corrective action program as CAP035210/RCE000330. To address this issue, the individuals involved were administratively precluded from entering the Radiologically Controlled Area for the remainder of the outage. Additionally, training to reinforce radiation protection standards and expectations was provided to radiation workers.

### Analysis (2)

The inspectors determined that the failure of the worker to stop work and contact RP upon receiving an ED alarm was a performance deficiency warranting a significance evaluation. The Occupational Radiation Safety cornerstone was impacted by this issue. The inspectors reviewed the samples of minor issues in IMC 0612, "Power Reactor

Inspection Reports,” Appendix E, “Examples of Minor Issues,” and determined that there were no examples similar to this issue. The inspectors concluded that the finding was of more than minor risk significance in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Disposition Screening,” since the finding was associated with the Human Performance attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material because the issue involved a worker’s unplanned and unintended dose, or the potential of such a dose, resulting from actions contrary to licensee Technical Specifications and RWP requirements.

The inspectors determined that the worker’s failure to stop work and contact RP upon receiving an ED dose rate alarm was a failure of the individual radiation safety barrier against unplanned and unintended radiation exposures. Additionally, all RWPs at Palisades contain the actions workers shall take upon receipt of ED dose and dose rate alarms. Further, both workers attended the station’s “Back to Basics” training prior to the outage which emphasized proper radiation worker practices, including the proper response to ED alarms.

Utilizing IMC 0609, “Significance Determination Process,” Appendix C, “Occupational Radiation Safety SDP,” the inspectors determined that the finding (1) did not involve ALARA/work controls, (2) did not result in an overexposure, and (3) based on the surveys of the material inside the HRA and length of time the workers spent in the HRA, did not result in a substantial potential for an overexposure or compromise the licensee’s ability to assess dose. Consequently, the finding screened out as Green and was of very low safety significance.

#### Enforcement (2)

Technical Specification 5.7.1.b requires that the access to and activities in a High Radiation Area shall be controlled by means of a Radiation Work Permit, or equivalent, that includes the radiation dose rates in the work area and other requirements regarding necessary radiation protection equipment and measures. Radiation Work Permit P03-5100, which controlled activities conducted on the refueling floor on April 15, 2003, required that in the event of an electronic dosimetry dose rate alarm, the worker back out of the area, contact a Radiation Protection Technician, and await further instructions. Contrary to the above, on April 15, 2003, during activities on the refueling floor, a worker failed to back out of an area, contact a Radiation Protection Technician, and await further instructions upon receiving an electronic dosimetry dose rate alarm which was not in accordance with Radiation Work Permit P03-5100 and was a violation of Technical Specification 5.7.1.b. 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 (NCV), consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000255/2003006-04). This violation was entered into the licensee’s corrective action program as CAP035210/RCE000330. To address this issue, the individuals involved were administratively precluded from entering the Radiologically Controlled Area for the remainder of the outage. Additionally, training to reinforce radiation protection standards and expectations was provided to radiation workers.

### Analysis (3)

The inspectors determined that the movement of the drum and trash which resulted in the creation of an unposted and unbarricaded HRA for about 4 hours was a performance deficiency warranting a significance evaluation. The Occupational Radiation Safety cornerstone was impacted by this issue. The inspectors reviewed the samples of minor issues in IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," and determined that there were no examples similar to this issue. The inspectors concluded that the finding was of more than minor risk significance in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," since the finding was associated with the Human Performance and Program and Processes attributes of the Occupational Radiation Safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material because the issue involved the occurrence of the potential for unplanned, unintended dose to other individuals working near the unposted, unbarricaded HRA resulting from actions contrary to licensee Technical Specifications.

Utilizing IMC 0609, "Significance Determination Process," Appendix C, "Occupational Radiation Safety SDP," the inspectors determined that the finding (1) did not involve ALARA/work controls, (2) was not associated with an overexposure, and (3) based on the surveys of the radioactive drum and trash, did not result in a substantial potential for an overexposure or compromise the licensee's ability to assess dose. Consequently, the finding screened out as Green and was of very low safety significance.

### Enforcement (3)

Technical Specification 5.7.1.a requires, in part, that each entryway to a High Radiation Area shall be barricaded and conspicuously posted as a High Radiation Area. Contrary to the above, on April 15, 2003, radioactive material consisting of a drum and trash bags relocated from a posted High Radiation Area on the refueling floor to another location on the refueling floor created a High Radiation Area which was not posted and barricaded and was a violation of Technical Specification 5.7.1.a. 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 05000255/2003006-05). This violation was entered into the licensee's corrective action program as CAP035210/RCE000330. Upon discovery, the licensee took immediate corrective actions to properly post the high radiation area. Additionally, further surveys were conducted to verify that no other unknown radiological conditions existed.

## 2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning And Controls (71121.02)

### .1 Inspection Planning

#### a. Inspection Scope

The inspectors reviewed plant collective exposure history, current exposure trends, and ongoing and planned activities in order to assess current performance and exposure challenges. This included determining the plant's current 3-year rolling average for collective exposure in order to help establish resource allocations and to provide a perspective of significance for any resulting inspection finding assessment. The inspectors determined site specific trends in collective exposures and source-term measurements.

These reviews represented one inspection sample for the review of collective radiation exposure for the previous 3 years.

#### b. Findings

No findings of significance were identified.

### .2 Radiological Work Planning.

#### a. Inspection Scope

The inspectors compared the results achieved including dose rate reductions and person-rem used with the intended dose established in the licensee's ALARA planning for planned work activities. Reasons for inconsistencies between intended and actual work activity doses were reviewed. The inspectors reviewed the RWP/ALARA reviews for the following seven work activities from the most recent refueling outage:

- Reactor Head Disassembly and Movement (RWP P03-5102)
- Upper Guide Structure Lift Rig/In-core Instrumentation Activities (RWP P03-5104)
- Reactor Head Reassembly/Closeout Activities (RWP P03-5108)
- In-Core Instrumentation Flange Activities (RWP P03-5111)
- Nozzle Dam Installation/Removal Activities (RWP P03-5150)
- ROSA [Remotely Operated Service Arm]/Eddy Current Testing and Tube Plugging (RWP P03-5152)
- Containment Scaffold Work (RWP P03-5306)

The inspectors compared the person-hour estimates, provided by maintenance planning and other groups, with the actual work activity time requirements in order to evaluate the accuracy of these time estimates. The licensee's post-job (work activity) reviews were evaluated to verify that identified problems were properly entered into the licensee's corrective action program.

These reviews represented three inspection samples; one sample for the review of ALARA planning, one sample for the review of person-hour estimates, and one sample for the review of problems entered into the corrective action program.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolutions

a. Inspection Scope

The inspectors reviewed the licensee's ALARA program self-assessments since the last inspection to determine if the licensee's overall audit program's scope and frequency met the requirements of 10 CFR 20.1101(c).

The inspectors verified that identified problems were entered into the corrective action program for resolution, and that they had been properly characterized, prioritized, and resolved. This included dose significant post-job (work activity) reviews and post-outage ALARA report critiques of exposure performance.

Corrective action reports related to the ALARA program were reviewed and staff members were interviewed to verify that follow-up activities had been conducted in an effective and timely manner commensurate with their importance to safety and risk using the following criteria:

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 tracked in the corrective action system
8. Implementation/consideration of risk significant operational experience feedback

These reviews represented three inspection samples; one sample for the review of ALARA program self-assessments, one sample for the review of problems entered in the licensee's corrective action program, and one sample for the review of follow-up activities related to corrective action reports.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Respiratory Protective Equipment Maintenance and User Training

a. Inspection Scope

The inspectors reviewed the licensee's respiratory protection and confined space entry procedures and discussed their implementation relative to the requirements of 10 CFR 20.1703(f) for standby rescue persons whenever one-piece atmosphere supplying suits, or any combination of respiratory protection and personnel protective equipment were used which the wearer may have difficulty extricating himself. Specifically, the inspectors reviewed the licensee's work planning process and implementing practices, and interviewed RP staff regarding the following aspects of 10 CFR 20.1703: (1) designation of an adequate number of standby rescue workers and their training/instruction, (2) presence of equipment staged at the work site for the safety of the rescuer and for extrication of the respiratory equipment user, (3) practices for continuous communication between standby rescuer(s) and the respiratory protection user(s), and (4) provisions for immediate availability of the standby rescuer.

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 reviewed the data submitted by licensee personnel for July 2002 through June 2003 to verify that the following two Performance Indicators were reported accurately:

- Heat Removal System (Auxiliary Feedwater System) Unavailability
- Residual Heat Removal System Unavailability

The inspectors reviewed samples of records regarding maintenance rule performance, control room logs, maintenance activities which resulted in unavailability time, and monthly operating data reports.

b. Findings

No findings of significance were identified.

.2 Radiation Safety Strategic Area

a Inspection Scope

The inspectors sampled licensee submittals for the performance indicators (PI) listed below for the period from October 2002 to June 2003. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," were used.

- Occupational Exposure Control Effectiveness

The inspectors previously reviewed the one unintended exposure occurrence under this PI which occurred in November 2002 and was documented in NRC Inspection Report 05000255/2003002. Since no additional reportable events were identified by the licensee for the 4<sup>th</sup> quarter of calendar year 2002 through the 2<sup>nd</sup> quarter of calendar year 2003, the inspectors compared the licensee's data with the corrective action program database and the radiological controlled area exit electronic dosimetry transaction records for these time periods to verify that there were no unaccounted for occurrences in the Occupational Radiation Safety Performance Indicator. Additionally, the inspectors conducted walkdowns of accessible locked high radiation areas and very high radiation area entrances to verify the adequacy of controls in place for these areas.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Loss of Bus 1E Due to Removal of Start-up Transformer 1-2 Undervoltage Potential Transformer Fuses

a. Inspection Scope

On April 1, 2003, power was lost to nonsafety-related 2400 Volt bus 1E when incorrect potential transformer fuses were removed from safety-related 2400 Volt bus 1D. This resulted in the interruption of the plant service air supply to steam generator nozzle dams during a period of reduced primary coolant system inventory. The inspectors previously documented a finding of very low safety significance and a violation of Technical Specification 5.4.1 (NCV 50-255/03-04-01) related to this issue. The inspectors reviewed the licensee's root cause evaluation for the following condition report associated with this event:

- CAP034788, "Loss of Bus 1E Due to Removal of Start-up Transformer 1-2 Undervoltage Potential Transformer Fuses"

The inspectors verified the following attributes during their review of the licensee's root cause evaluation and corrective actions:

- evaluation and disposition of performance issues and operability issues;
- consideration of the extent of condition, generic implications, common cause and previous occurrences;
- classification and prioritization of the resolution of the problem, commensurate with safety significance;
- identification of the root and contributing causes of the problem; and
- identification of corrective actions which were appropriately focused to correct the problem.

The inspectors discussed the corrective actions and condition report evaluation with site personnel.

b. Findings and Observations

No findings of significance were identified. The inspectors verified that the root cause evaluation and associated corrective actions were appropriate. However, the inspectors noted one minor weakness in the evaluation.

The licensee concluded that the root cause for this event was that maintenance personnel failed to meet station standards for procedure use and adherence. The inspectors noted that the root cause evaluation was not as critical of the role that operators had in causing the event. Operators did not participate in the pre-job brief for the maintenance activity, which included the removal of potential transformer fuses to de-energize the metering circuitry.

The evaluation stated that operators role was "limited and straightforward" and that "their participation in the pre-job brief would have been beneficial only if the fuse identity confusion had been known in advance." The evaluation also stated that "the ability to coordinate their attendance would have been restricted by the reduced amount of time available to plan and perform the work." As a result, operators were not familiar with the work order and operators did not use the work order to confirm that the actions taken were correct before removing the fuses.

The inspectors concluded that had operators been involved in the pre-job brief and reviewed the work order, they would likely have recognized that only one set of fuses were to be removed, which could have precluded this event. However, while the documented evaluation was not as critical to the role the operator's had in causing the event, the inspectors determined that the identified corrective actions for this issue were adequate and that they also addressed the associated human performance deficiencies demonstrated by the operators.



.2 Diluted Boric Acid in the Chemical Volume Control System Blender Line

a. Inspection Scope

On May 8, 2003, an unexpected increase in reactor power and primary coolant system temperature occurred following a routine blend to the Volume Control Tank. Control room operators subsequently inserted control rods and reduced load on the main turbine to mitigate the unexpected response and to ensure that steady state reactor thermal power limits were not exceeded. The inspectors reviewed the Apparent Cause Evaluation for Condition Report CAP035633, "Did Not See the Effects of Boron During Blend to the Volume Control Tank," that was generated for this issue. The inspectors verified that the problem was accurately identified; the apparent cause was adequately justified; extent of condition and generic implications were appropriately addressed; and that 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. The inspectors determined the identified cause was appropriately justified and that the identified corrective actions had been implemented or were scheduled to be implemented commensurate with the safety significance of the issue. However, the inspectors noted one minor weakness regarding problem identification.

During the apparent cause evaluation, licensee personnel determined that two valves not associated with the apparent cause in the Chemical Volume Control System may have been leaking by causing a minor amount of dilution in the boric acid pumped feed line. Based on data taken during the evaluation, licensee personnel determined that the dilution was either from the primary coolant system water through Check Valve CK-CVC2141 or from the primary makeup water system water through Manual Valve MV-CVC2167. However, the inspectors noted that no condition report or work request had been generated to ensure that the identified valve deficiencies would be addressed.

The inspectors concluded that the amount of dilution in the boric acid pumped feed line would not result in any adverse consequences of significance if the primary coolant system was borated using the pumped feed line. Consequently, this issue was considered minor; however, the failure to generate a condition report or work request regarding the potentially leaking valves demonstrated a weakness in entering identified problems into the corrective action program in a timely manner.

Licensee personnel subsequently generated Condition Report CAP037950, "Leakage Into Boric Acid Pumped Feed Line Identified," which was entered into the licensee's corrective action program to evaluate the identified condition and develop corrective actions as necessary. The inspectors verified that this issue was entered into the corrective action program with the appropriate significance characterization.

.3 Failure of Containment Fan Cooler V-4A

a. Inspection Scope

The inspectors reviewed the root cause evaluation associated with Condition Report CAP036444, "Containment Air Cooler Fan V-4A Tripped Unexpectedly." The inspectors verified that the identification of the problem was complete, accurate and identified in a timely manner commensurate with its ease of discovery; that the evaluation and disposition of performance issues and operability issues was adequate; the root cause was adequately justified; extent of condition and generic implications were appropriately addressed; and that corrective actions were appropriately focused to address the problem and implemented commensurate with the safety significance.

b. Findings

No findings of significance were identified. The inspectors determined that the identified root cause was appropriately justified and that the identified corrective actions were adequate and had been implemented or were scheduled to be implemented commensurate with the safety significance of the issue. However, the inspectors noted one weakness regarding problem identification which had been documented in the evaluation.

On June 19, 2003, an Auxiliary Operator discovered loose parts consisting of nuts and bolts under Containment Air Cooler Fan V-4A and noted an abnormal noise coming from the fan motor. Licensee personnel subsequently determined that the loose parts were fasteners that had come from the associated ductwork and the noise was from the loose ductwork. Consequently, Fan V-4A was declared inoperable due to integrity concerns with the ductwork during a seismic event. Fan V-4A was declared operable and returned to service on June 20, 2003, after the fasteners were reinstalled and the ductwork was secured.

However, licensee personnel did not complete a formal operability recommendation which would have required a more rigorous technical evaluation prior to declaring the fan operable. Instead the fan was declared operable and returned to service on June 20, based on various data obtained and visual observations. Consequently, the fan was returned to service with more significant motor bearing degradation than identified by licensee personnel and the bearing subsequently failed on July 1.

Therefore, the identification of Fan V-4A's degraded condition was not complete and accurate, and this problem was not identified in a timely manner commensurate with its significance. The fact that the initial operability determination was non-conservative was recognized by licensee personnel and appropriately documented in the root cause evaluation.

This issue was considered a finding of very low safety significance (Green) and enforcement discretion was required to complete repairs to Fan V-4A with the plant at power which are discussed in detail in Sections 1R15 and 4OA5, respectively, of this report.

.4 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 reasonable, and had been implemented or were scheduled to be implemented in a manner commensurate with the significance of the identified problem. The condition reports that the inspectors reviewed are included in the list of documents for the specific inspection activities which is attached to this report.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

.1 Grid Disturbance on August 14, 2003

a. Inspection Scope

On August 14, 2003, the inspectors observed plant parameters and equipment status during the automatic start of Emergency Diesel Generators 1-1 and 1-2 to verify that the plant equipment responded as designed to a grid disturbance event. The inspectors provided continuous 24-hour site coverage to monitor plant activities during the grid disturbance. Emergency Diesel Generators 1-1 and 1-2 automatic start was caused by the voltage drop on the 2140 Volt safety busses due to the loss of the electrical transmission grid on portions of the east coast of the United States and parts of Canada. Licensee operator response during this event was assessed under "Personnel Performance Related to Non-Routine Plant Evolutions and Events," in Section 1R14.2 of this report.

b. Findings

No findings of significance were identified.

4OA4 Cross-Cutting Aspects of Findings

- .1 A finding described in Section 1R15 of this report had, as its primary cause, a corrective action deficiency, in that, the lack of rigor in an operability determination for Containment Air Cooler Fan V-4A failed to identify the extent of fan motor bearing degradation. Consequently, Fan V-4A subsequently tripped on July 1, 2003, because of a failed motor bearing after the fan had been declared operable and returned to service on June 20, 2003. A Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified.

#### 4OA5 Other Activities

(Closed) Unresolved Item (URI) 05000255/2003006-06: Review of Notice of Enforcement Discretion (NOED) 03-3-005 For Nuclear Management Company LLC Regarding Palisades

The inspectors reviewed the circumstances associated with issuing NOED 03-3-005 and the basis for the NOED request to determine if a failure to comply with regulatory requirements contributed to the need for enforcement discretion. The inspectors also verified that licensee personnel complied with the compensatory actions contained in the NOED.

On July 1, 2003, at 4:14 a.m., Containment Air Cooler Fan V-4A tripped unexpectedly. Technical Specification 3.6.6, "Containment Cooling Systems," Condition "A" was entered which required that with one or more containment cooling trains inoperable, restore the train(s) to operable status within 72 hours. Technical Specification 3.6.6, Condition "B" required that if Condition "A" could not be met, then be in Mode 3 (Hot Standby) within 6 hours and in Mode 4 (Hot Shutdown) within 30 hours.

Licensee personnel determined that the repairs necessary to return Fan V-4A to an operable status would require more than 72 hours. Consequently, enforcement discretion would be needed to complete the repairs with the plant at power and preclude a plant shutdown to Mode 3. On July 3, 2003, licensee personnel requested enforcement discretion for the 72-hour completion time specified by TS 3.6.6, Condition "A" for 100 hours to complete the repairs to restore Containment Air Cooler Recirculation Fan V-4A to an operable status and preclude a plant shutdown.

The NRC verbally granted NOED 03-3-005 at 1:37 p.m. on July 3, 2003. Licensee personnel subsequently replaced the motor on Fan V-4A and declared Fan V-4A operable on July 6, 2003, at 2:04 p.m., which was within the completion time approved in the NOED.

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

This issue was determined to be a self-revealed finding which is discussed further in Section 1R15 of this report.

#### 4OA6 Meetings

##### .1 Exit Meeting

The inspectors presented the inspection results to Mr. D. Malone and other members of licensee management on October 9, 2003. Licensee personnel acknowledged the findings presented. The inspectors asked licensee personnel whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

The following Interim Exit Meeting was conducted:

- Occupational Radiation Safety ALARA and access control programs inspection with Mr. D. Cooper on August 29, 2003.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

D. Cooper, Senior Vice President of Group Operations  
D. J. Malone, Site Vice President  
M. Carlson, Engineering Director  
P. Harden, Site Director  
D. G. Malone, Supervisor, Regulatory Assurance  
G. Packard, Operations Manager  
R. Remus, Plant Manager  
D. Williams, Manager - Chemistry and Radiation Protection  
C. Moeller, ALARA Supervisor

#### Nuclear Regulatory Commission

D. Hood, Project Manager, NRR

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

05000255/2003006-01	NCV	Degraded Motor Bearing in Containment Air Cooler Fan V-4A
05000255/2003006-02	URI	Failure to Test the ATWS System
05000255/2003006-03	NCV	Failure to Obtain a Radiological Briefing Prior to Entry Into a High Radiation Area
05000255/2003006-04	NCV	Failure to Meet Radiation Work Permit Requirements Upon Receipt of an Electronic Dosimetry Alarm
05000255/2003006-05	NCV	Failure to Barricade and Post a High Radiation Area (Section 2OS5.1)
05000255/2003006-06	URI	Review of Notice of Enforcement Discretion 03-3-005 (Section 4OA5)

Closed

05000255/2003006-01	NCV	Degraded Motor Bearing in Containment Air Cooler Fan V-4A
05000255/2003006-03	NCV	Failure to Obtain a Radiological Briefing Prior to Entry Into a High Radiation Area
05000255/2003006-04	NCV	Failure to Meet Radiation Work Permit Requirements Upon Receipt of an Electronic Dosimetry Alarm
05000255/2003006-05	NCV	Failure to Barricade and Post a High Radiation Area (Section 2OS5.1)
05000255/2003006-06	URI	Review of Notice of Enforcement Discretion 03-3-005 (Section 4OA5)

Discussed

None

## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections of portions of the documents are 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 17

### 1R04 Equipment Alignment

#### Plant Procedures and Miscellaneous Documents

SOP-15; Service Water System Checklist-Critical, Attachment 2; Revision 28  
SOP-20; High Pressure Control Air System; Revision 20  
T-205-B; Valve Location Map West Engineered Safeguards, Attachment 2; Revision 3  
T-205-A; Valve Location Map East Engineered Safeguards, Attachment 2; Revision 2  
FSAR 6.1; Safety Injection System, Revision 23  
FSAR 9.1; Updated Final Safety Analysis Report-Service Water System, Revision 23  
FSAR 9.5.2; Updated Final Safety Analysis Report-High Pressure Air System,  
Revision 23  
Critical Service Water Health and Status Report; As of August 8, 2003  
Piping and Instrument Diagram M-225; High Pressure Air Operated Valves Sheets 1  
and 1A  
Piping and Instrument Diagram M-208; Service Water System Sheet 1A  
Piping and Instrument Diagram M-208; Service Water, Screen Structure and Chlorinator

#### Condition Reports Reviewed to Assess Corrective Actions

CAP031871 "CAP031074 Operability Recommendation Used Information From a  
Non-issued Procedure"  
CAPL0201948 "Lack of an Available Justification on Low Pressure Suction Trip Setpoint  
for Auxiliary Feedwater Pumps P-8A/B"

### 1R05 Fire Protection

#### Plant Procedures

FPSP-RP-11; Fire Barrier Penetration Seal/Conduit Seal Inspection Form for Fire  
Areas 3, 6, 11, 17, and 28; Revision 5  
FPSP-SO-2; Safety-Related Fire Door Data Sheet for Fire Areas 28, 3, 6, 11; Revision 0



FP-MS-1; Fire Protection Check Sheet Monthly Inspection and Testing of Fire Doors; Revision 2  
FPSP-MO-2; Fire Hose Reel Station and Fire Hose Rack Station Check Sheet for Fire Area 17; Revision 2  
FPSP-WP-1; Safety-Related Fire Door Data Sheet Fire Areas 28,3, 6, 11; Revision 1  
FPSP-SI-1; Data Sheet for Alarm Bells and Ionization Smoke Detectors for Fire Areas 28, 3, 11 17; Revision 3  
FPSP-RO-9; Cableway Room #328 and 1-D Switchgear Room #223, Diesel Generator 1-1 Room #116 and Diesel Generator 1-2 Room #116B Sprinkler Head Locations; Revision 0  
FPSP-RO-6; Fire Hose Reel/Rack Station Checksheet; Fire Area 17; Revision 0  
FPSP-RO-7; Inside Fire Hose Hydrostatic Pressure Test Data Sheet; Fire Area 17; Revision 2  
FPSP-RM-5; Palisades Fire Damper Sheet for Fire Areas 3, 11; Revision 2  
FPSP-QO-2; Fire Protection Sprinkler System Water Flow Switch Alarm Check Sheet for Fire Areas 3, 6; Revision 1  
FPSP-MO-1; Fire Suppression Water System Valve Alignment for Fire Areas 3, 6; Revision 4  
FPSP-AO-2; Fire Suppression Water System Fire Valve Operation Data Sheet for Fire Areas 3, 6; Revision 3  
FPSP-AO-3; Fire Hose Reel/Rack Station Valve Data Sheet; Fire Area 17; Revision 2  
ONP25.2; Off-Normal Procedure - Fire Which Threatens Safety-Related Equipment Fire Areas 3, 6, 28, 11; Revision 12

#### Condition Reports Reviewed to Assess Corrective Actions

CAP031513; EA-FPP-95-041, Fire Loading For Fire Area 32, SIRW Tank and CCW Roof Concerns

#### 1R06 Flood Protection

##### Plant Procedures

MSM-M-16; Inspection of Watertight Barriers; Revision 10  
PPAC MSM071; Annual Inspection of Watertight Barriers; December 20, 2002  
PPAC FPS024; High Use Watertight Door Inspection/Repair; April 1, 2003  
SOP-3, Attachment 13; Checklist 3.4, Plant Flood Door System Checklist; Revision 53

##### Miscellaneous Documents

DBD-7.08; Plant Protection Against Flooding; Revision 4  
24111511; Work Order - Engineered Safeguard Room Sump Pump Start/Stop; June 4, 2002  
24111272; Work Order - East Engineered Safeguard (T-78A) Calibrate and Test the Safeguards Sump Level Instruments and Alarm; March 15, 2002

Condition Reports Reviewed to Assess Significance Characterization for Identified Problems

CAP033819; Deficient Watertight Barrier Inspection - Boot Seal Damage  
CAP033488; Bellows Expansion Joints Fail Their Material Condition Inspections

Condition Reports Reviewed to Assess Corrective Actions

CAP033618; Bellows Expansion Joints Fail Their Material Condition Inspections  
(Repeat)  
CAP0338820; Deficient Watertight Barrier Inspection - Boot Seal Missing Fastener Strip

1R11 Licensed Operator Requalification

SPE-40; Simulator Performance Exercise; Licensed Operator Requalification;  
Revision 0  
PNT-7.0; Simulator Performance Evaluation; September 17, 2003

1R12 Maintenance Effectiveness

Plant Procedures

EM-25; Maintenance Rule Program; Revision 4  
AP-4.10; Personnel Protective Tagging; Revision 13  
WGS-M-2; Inspection and Repair of Waste Gas Compressors C-50A and C-50B;  
Revision 5

Miscellaneous Documents

FSAR 14.3; Boron Dilution; Revision 23  
EGAD-EP-10; Component Cooling Water Maintenance Rule Scoping Document and  
Associated Maintenance Rule Performance Indicators; Revision 2  
EGAD-EP-10; Chemical Volume and Control System Maintenance Rule Scoping  
Document and Associated Maintenance Rule Performance Indicators; Revision 2  
Component Cooling Water Health and Status Report; dated May 22, 2003  
Chemical Volume and Control System Health and Status Report; dated May 22, 2003  
Maintenance Rule Category (A)(1) List; dated July 7, 2003  
MM-WGS-78BO Waste Gas R0 and R1; Tagging Orders; Waste Gas  
Compressor C-50A With Aftercoolers

Work Orders

Work Order History for Component Cooling Water System; May 2001 through  
June 2003  
24320355; C-50A, Waste Gas Compressor, Disassemble; July 11, 2003

Condition Reports Reviewed to Assess Maintenance Rule Evaluations and Corrective Actions

CAP034777; CCW [Component Cooling Water] Flow to P-54B and P-54C Found Low  
During T-223

CAP034779; CCW Flow to P-66A and P-67B Found Low During T-223  
CAP034503; Unexpected Start of CCW Pump P-52A During Preps for RT-8C  
CAP034538; P-55C Potentially Run Without Suction or Discharge Path  
CAP035317; Charging Pump P-55A Failed to Meet QO-17 Surveillance Speed

Condition Reports Reviewed to Assess Corrective Actions

CAP035540; SW [Service Water] Pump P-7C Exceeded its Maintenance Rule Availability Performance Criteria  
CAP032600; Fire Protection System Exceeds Maintenance Rule Reliability Performance Criteria  
CAP029582; Main Feedwater System Exceeds MPFF [Maintenance Preventable Functional Failure] Screening Criteria  
CAP029749; Component Cooling Water System (CCS/CCS) Maintenance Rule Category (A)(1) Action Plan  
CAP036557; Incomplete Tagging Associated With Work on Waste Gas Compressor C-50A  
CAP036663; P-55A, 'A' Charging Pump, Fluid Drive Low Oil Level  
CAP034093; Charging Pump P-55A Flow Capacity at Low Pressure

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

Miscellaneous Documents

Operation's Log Entries Report, July 21-25, August 6-7, August 11-15 and September 16-17, 2003  
Operators Risk Report, July 21-25, August 6-7, August 11-15 and September 16-17, 2003  
Scheduled Maintenance Activities, July 21-25, August 6-7, August 11-15 and September 16-17, 2003

1R14 Non-Routine Plant Evolutions and Events

CAP037095; Grid Disturbance Experienced - Conditions/Alarms Received and Actions Taken  
Technical Specifications Basis 3.8; Electrical Power System

1R15 Operability Evaluations

CAP034672; CK-ES3181 Exceeded the Breakaway Torque Specified in RO-141, Containment Sump Check Valve Inservice Test  
CAP033639; Service water Piping Does Not Meet Final Safety Analysis Report Allowables for Waterhammer Event  
CAP036284; Loose Parts Found on Floor Beneath CAC Fan V-4A  
CAP036444; Containment Air Cooler Fan V-4A Tripped Unexpectedly  
CAP036565; Assess and Critique Operability Determination and Rec CAP036284 and CAP036305  
CAP036305; Possible Evidence of Motor Bearing Degradation for CRS Fan V-4A

CAP034152; Uncertain P-55A Flow Rate at PCS Pressure Less Than Operating Pressure  
Administrative Procedure No. 3.03; Corrective Action Process; Revision 32  
Piping and Instrument Diagram M-204: Safety Injection Containment Spray and Shutdown Cooling System  
NRC Inspection Manual Part 9900 "Operability"; October 31, 1991  
Technical Specifications 5.5.7 "Inservice Testing Program"; Amendment No. 189  
EM-09-02; Inservice Testing of Plant Valves  
EM-09-18; ASME/ANSI OMa-1988, Part 10  
EA-C-PAL-98-1408A-04; "Hydraulic Opening Forces Acting on the Sump Check Valves," Revision 1  
RO-141; Containment Sump Check Valves Inservice Test Basis Document;  
DBD-2.01, Section 3.4.8.3; Recirculation Actuation Signal  
FP-OP-OL-01; Operability Determination; Revision 0

1R17 Permanent Plant Modifications

1R19 Post Maintenance Testing

Work Orders

299494; V-4A Post-Maintenance Air Flow Test; July 6, 2003  
24113603; Auxiliary Feedwater Pump P-8A Motor; July 16, 2003  
24113651; Auxiliary Feedwater Pump P-8A Breaker 152-104; July 16, 2003  
24320738; Auxiliary Feedwater Flow Control to E-50A; July 29, 2003  
24322952; High Pressure Safety Injection Pump P-66B Subcooling Control Valve CV-3070; August 12, 2003  
24322662; Emergency Diesel Generator 1-2 Starting Air Pressure Control; August 6, 2003  
24113652; 152-107 Breaker Replacement; September 17, 2003  
24213349; Fuel Oil Solenoid Valve SV-1415; September 16, 2003  
24321701; Fuel Oil Return Check Valve CK-DE403  
24321702; Fuel Oil Return Check Valve CK-DE405

Plant Procedures

MSM-M-57, Attachment 3; Data Adjustment For Diagnostic System Inaccuracies; Revision 6  
MSM-M-57; Universal Diagnostic System Operating Procedure; Revision 6

Miscellaneous Documents

DBD 2.08; Containment Air Coolers  
EA-PAH-91-05; Benchmarking of the MHACALC Code

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP036652; Damage Occurred to Breaker 152-104 P-8A Auxiliary Feedwater Pump Upon Tagging Restoration

CAP037030; Subcooling CV-3070 Failed to Open During QO-5 Valve Test Procedure  
CAP036985; PCV-1489 EDG 1-2 K-6B Starting Air Pressure Controller Failed to  
Regulate  
CAP037596; Diesel Engine Lube Oil Filter Requires Venting and Drain Valve Closed

## 1R22 Surveillance Testing

### Plant Procedures

RPS-I-10; Aux Feed Pump K8 Auto Start on Loss of AFAS DC Control Power;  
Revision 0  
RPS-I-7; Anticipated Transient Without Scram Calibration Functional Test; Revision 3  
RPS-I-8; Anticipated Transient Without Scram PORV High Pressurizer Pressure  
Actuation Functional Test; Revision 6  
QE-35; ED-01 and ED-02 Battery Checks - Quarterly, Revision 5

### Completed Surveillance Test Procedures

RO-97; Auxiliary Feedwater System Automatic Initiation Test; Revision 11; July 29, 2003  
RE-132; Diesel Generator 1-2 Load Reject; Revision 2; August 5, 2003  
RPS-I-8, Anticipated Transient Without Scram End To End Functional Test; Revision 0;  
March 28, 1992  
RPS-I-8, Anticipated Transient Without Scram End To End Functional Test; Revision 3,  
August 7, 1995;  
RPS-I-8, Anticipated Transient Without Scram End To End Functional Test; Revision 0;  
June 29, 1993  
RPS-I-8, Anticipated Transient Without Scram End To End Functional Test; Revision 5;  
June 2, 1998  
RPS-I-8, Anticipated Transient Without Scram End To End Functional Test; Revision 5;  
November 18, 1999

### Miscellaneous Documents

Comprehensive Commitment Report; CMT891012942; Auxiliary Feedwater System  
Licensee Response to Generic Letter 88-03; Steam Binding of Auxiliary Feedwater  
Pumps; May 9, 1988  
IE Bulletin 85-01; Steam Binding of Auxiliary Feedwater Pumps  
Regulatory Guide 1.108; Periodic Testing of Diesel Generator Units Used as Onsite  
Electric Power Systems at Nuclear Power Plants; Revision 1, August 1977  
FSAR 8.4.2; Station Batteries, Revision 23  
WD-950, Sheet 21A; Single Line Meter and Relay Diagram-125VDC, 120V Instrument  
and Preferred AC System

### Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP036899; Senior Resident Inspector Questions Whether Intent of Commitment for  
GL-88-03 Are Maintained  
CAP036974; Failure to Perform ATWS Steam Driven Aux Feedwater Pump Test  
RPS-I-10

## 1R23 Temporary Plant Modifications

FP-E-MOD-03; Fleet Modification Procedure; Temporary Modifications; Revision 0  
QF-0540; Temporary Modification Control Form; TM-2003-024, Open Links to Safety  
Injection Tank Pressure Control Solenoid Valves; August 18, 2003  
QF-0515A; Design Input Checklist, Part A - Engineering Programs and Departmental  
Reviews; TM-2003-024  
QF-0515B; Design Input Checklist, Part B - Design Considerations, Requirements and  
Standards; TM-2003-024  
Proc No 3.07, Attachment 1; Palisades Nuclear Plant 50.59 Screen; TM-2003-024  
AF-0526 (FP-E-MOD-07); Design Verification Assignment; TM-2003-024  
E-145 Sheet 3; Schematic - Safety Injection and Shutdown Cooling; August 28, 2003  
M-203 Sheet 1; Piping and Instrument Diagram - Safety Injection, Containment Spray  
and Shutdown Cooling; August 28, 2003  
24322987; Work Order - Open Link for Solenoid Valve-0338; August 13, 2003  
24322988; Work Order - Open Link for Solenoid Valve-0342; August 13, 2003  
24322989; Work Order - Open Link for Solenoid Valve-0346; August 13, 2003  
24322990; Work Order - Open Link for Solenoid Valve-0347; August 13, 2003

### Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP037524; NRC Resident Inspector Identified a TM Tag Hung on Wrong Sliding Link  
CAP037339; SOP-3 Revision Was Almost Approved with Less Than Adequate  
Justification  
CAP037658; Temporary Modification Package Administrative Deficiencies  
CAP037179; EEQ Solenoid Valves Qualified Life Expired

## 1EP6 Emergency Preparedness Drill Evaluation

### Plant Procedures

EI-3, Attachment 1; Palisades Event Notification Form; Revision 19  
EI-3, Attachment 1.1; Palisades Event Technical Data Sheet; Revision 19  
EI-1; Emergency Classifications and Actions; Revision 42  
EI-3; Communications and Notifications; Revision 19  
EI-6.13; Protective Action Recommendations For Offsite Population; Revision 10

### Miscellaneous Documents

Scope and Objectives, PALEX-2003; September 24, 2003  
PALEX-2003, Sequence of Events; September 24, 2003

### Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP037855; Missed Performance Indicator Opportunity for DEP-1 During Emergency  
Drill  
CAP037962; Emergency Planning Drill Technical Support Center Drill Items

CAP037827; OSC Issues Identified During September 24, 2003 PALEX  
CAP037854; Emergency Drill Sequence of Events Discrepancies

2OS1 Access Control to Radiologically Significant Areas

AP 1.01; Materiel Condition Standards and Housekeeping Responsibilities (as related to control non-fuel material stored in the spent fuel pool); Revision 14  
AP 5.09; Maintenance Cleanliness Standards (as related to control non-fuel material stored in the spent fuel pool); Revision 7  
CAP034220/ACE002958; Adverse Trend in the Number of Electronic Dosimeter Alarms During the Outage; dated May 14, 2003  
CAP034286; Electronic Dosimeter Alarm Investigations Indicate a Trend in Not Hearing ED Alarms; dated May 15, 2003  
CAP034293/CE004439; Inadequate Engineering Controls Exercised During CRD Unlatching; dated March 21, 2003  
CAP034336/CE004474; Increased Personnel Dose Experienced Due to Wrong Steam Generator Parts and Tool; dated March 22, 2003  
CAP034418; Ineffective Communication; dated March 24, 2003  
CAP035187/ACE003037; Reactor Vessel Level Monitoring System (RVLMS) Torque Errors; dated May 13, 2003  
CAP035210/RCE000330; Root Cause Evaluation for CAP035210: Unposted High Radiation Area; dated May 27, 2003  
Electronic Dosimetry Alarm Investigation Documents (for Containment Area Coordinator and contractor Crane and Rigging Worker); dated April 15, 2003  
HP 2.5; High Radiation Area Entry and Control; Revision 20  
HP 2.20; Radiation Safety Area Posting; Revision 15  
HP 2.33; Dose Investigation and Assessment; Revision 12  
HP 2.33-1; Personnel Primary Dose Assessment Record (worker received 50.2 mrem); dated April 4, 2003  
HP 2.33-1; Personnel Primary Dose Assessment Record (worker received 75.6 mrem); dated April 8, 2003  
HP 8.2; Whole Body Count Evaluation; Revision 11  
RWP P03-5100; Westinghouse Crane and Rigging Activities; Revision 2  
RWP P03-5150; Install and Remove Nozzle Dams in E-50A/B; Revision 0  
RWP P03-5306; Scaffold Work in Containment; Revision 5  
RWP P03-5503; NDE Bare Metal Inspection on N-50 Reactor Head; Revision 2  
Radiological Survey Sheet - 649' Containment Cavity (Stud Hole Plugs and Guide Pins); dated April 9, 2003

2OS2 As Low As Is Reasonably Achievable (ALARA) Planning And Controls

ACE002952; Higher Dose Rates in Containment; dated May 13, 2003  
Assessment No. 103-55; Self-Assessment Report: Radiation Protection - ALARA/RWP Support Group; dated August 25, 2003  
CAP034220/ACE002988; Dose Performance During the 2003 Refueling Outage; dated July 25, 2003  
CAP034376/CE004506; Reactor Head RWP Did Not Receive an In-Progress Review When at 75 percent of Estimated Dose; dated March 23, 2003

CAP034508/CE005325; Dose Rates Found Higher than Expected on UGS Lift Rig; dated May 27, 2003  
CAP034938/CE004979; Additional Outage Radiation Exposure for Removing 4 Incore Detectors (ICIs); dated April 6, 2003  
RWP P03-5102; ALARA Post-Job Review: Disassemble Reactor Head and Move to Stand; dated May 30, 2003  
RWP P03-5104; ALARA Post-Job Review: Upper Guide Structure Lift Rig/In-Core Instrumentation Activities; dated May 2, 2003  
RWP P03-5108; ALARA Post-Job Review: Reactor Head Reassembly and Refueling Close-out Activities; dated May 30, 2003  
RWP P03-5111; ALARA Post-Job Review: Remove/Install In-Core Instrumentation Flanges and Associated Tasks; dated May 8, 2003  
RWP P03-5150; ALARA Post-Job Review: Install/Remove Nozzle Dams; dated April 13, 2003  
RWP P03-5152; ALARA Post-Job Review: Install/Removal of ROSA [Remotely Operated Service Arm], ECT [Eddy Current Testing] and Tube Plugging; dated August 22, 2003  
RWP P03-5150; ALARA Post-Job Review: Scaffold Work in Containment; dated June 20, 2003

#### 2OS3 Radiation Monitoring Instrumentation and Protective Equipment

AP 1.16; Respiratory Protection Program; Revision 0  
AP 8.07; Confined Space Procedure for Palisades; Revision 10  
HP 7.11; Use of Air-Line Respirators; Revision 7  
RWP P03-5150; Install and Remove Nozzle Dams in E-50A/B; Revision 0

#### 4OA1 Performance Indicator Verification

NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 2  
Administrative Procedure No. 3.09; Data Collection, Review and Reporting to NRC - Performance Indicator program  
ESS System PI Data for the 3<sup>rd</sup> and 4<sup>th</sup> quarters 2002 and for the 1<sup>st</sup> and 2<sup>nd</sup> quarters 2003  
AFW System PI Data for the 3<sup>rd</sup> and 4<sup>th</sup> quarters 2002 and for the 1<sup>st</sup> and 2<sup>nd</sup> quarters 2003  
NRC Indicator Occupational Exposure Control Effectiveness (OR-01) and Supporting Data; dated December 2, 2002; January 2, January 30, February 27, March 30, April 28, June 2, and June 26, 2003

#### 4OA2 Identification and Resolution of Problems

##### Condition Reports

CAP035633; Did Not See the Effects of Boron During Blend to the Volume Control Tank  
CAP034788; Loss of Bus 1E Due to Removal of S/U TX Undervoltage Potential TX Fuses



Apparent Cause Evaluations

ACE003059; Did Not See the Effects of Boron During Blend to the Volume Control Tank

Root Cause Evaluations

RCE000327; Loss of Bus 1E Due to Removal of S/U TX Undervoltage Potential TX Fuses

RCE000332; Containment Air Cooler Fan V-4A Tripped Unexpectedly

Plant Procedures

AP-3.03; Corrective Action Process; Revision 32

SOP-2A; Chemical and Volume Control System; Revision 52

DWO-1; Operators Daily/Weekly Items Modes 1, 2, 3 and 4; Revision 64

Miscellaneous Documents

Piping and Instrument Diagram M-202, Sheet 1A; Chemical and Volume Control System; Revision 54

Condition Reports Reviewed to Assess Significance Characterization of Identified Problems

CAP037950; Leakage Into Boric Acid Pumped Feed Line Identified

4OA3 Event Follow-up

LER 03-004; Inoperable Train of Containment Cooling—Condition Prohibited by Technical Specifications

4OA5 Other Activities

NOED 03-3-005; Notice of Enforcement Discretion For Nuclear Management Company, LLC Regarding Palisades; July 10, 2003

Request For Enforcement Discretion—Containment Cooler Recirculation Fan V-4A; July 3, 2003

## LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
CAC	Containment Area Coordinator
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
ED	Electronic Dosimetry
FSAR	Final Safety Analysis Report
HRA	High Radiation Area
NCV	Non-Cited Violation
NMC	Nuclear Management Company
NOED	Notice of Enforcement Discretion
NRC	Nuclear Regulatory Commission
PI	Performance Indicator
RCA	Radiologically Controlled Area
RP	Radiation Protection
RWP	Radiation Work Permit
SDP	Significance Determination Process
URI	Unresolved Item