

July 14, 2003

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

SUBJECT: PALISADES NUCLEAR GENERATING PLANT
NRC INSPECTION REPORT 50-255/03-04

Dear Mr. Cooper:

On June 30, 2003, the NRC completed an inspection at your Palisades Nuclear Generating Plant. The enclosed report documents the inspection findings which were discussed on June 26 and 27, 2003, with yourself and other members of your staff.

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

Based on the results of this inspection, one finding of very low safety significance (Green) was identified which involved a violation of NRC requirements. However, because of its very low safety significance and because it was entered into your corrective action program, the NRC is treating this issue as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the Non-Cited Violation, you should provide a response with a basis for your denial, within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 801 Warrenville Road, Lisle, IL 60532-4351; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Palisades facility.

Since the terrorist attacks on September 11, 2001, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI 2515/148 was completed at all commercial power nuclear power plants during calendar year '02 and the remaining inspection activities for Palisades are scheduled for

completion by August 29. The NRC will continue to monitor overall safeguards and security controls at Palisades.

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

Sincerely,

/RA/

Eric Duncan, Chief
Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 50-255/03-04
w/Attachment: Supplemental Information

cc w/encl: J. Cowan, Executive Vice President
and Chief Nuclear Officer
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-255

License No: DPR-20

Report No: 50-255/03-04(DRP)

Licensee: Nuclear Management Company, LLC

Facility: Palisades Nuclear Generating Plant

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

Dates: April 1 through June 30, 2003

Inspectors: J. Lennartz, Senior Resident Inspector
R. Krsek, Resident Inspector
M. Garza, Resident Inspector
D. Jones, Reactor Engineer
H. Peterson, Senior Operations Engineer
R. Jickling, Emergency Preparedness Analyst

Approved by: Eric Duncan
Branch 6
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000255/2003-04; Nuclear Management Company, LLC; 03/30/2003 - 06/30/2003; Palisades Nuclear Generating Plant; Personnel Performance Related to Non-Routine Plant Evolutions and Events.

This report covers a 3-month period of baseline resident inspections, review of licensed operator biennial written examination and annual operating test results, inservice (71111.08) and TI 2515/150 inspections, and an emergency preparedness inspection. The inspections were conducted by resident and region based inspectors. One Green finding with an associated Non-Cited Violation (NCV) was identified during the inspection. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process," (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. A finding was self-revealed when work order instructions were not followed and incorrect potential transformer fuses were removed on safety-related 2400-Volt Bus 1D with the plant in Mode 6 (Refueling). Removal of the incorrect fuses caused a loss of service air to the steam generator nozzle dams and resulted in primary coolant system leakage past the nozzle dams. The primary cause of this finding was related to the cross-cutting area of human performance.

This finding was more than minor because if left uncorrected it would become a more significant safety concern. The finding was of very low safety significance because the event did not result in an inadvertent change in primary coolant system temperature or a significant loss of refueling cavity level. One Non-Cited Violation of Technical Specification 5.4.1 was identified. (Section 1R14.1)

B. Licensee Identified Violations

A violation of very low safety significance which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number is listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant was in a scheduled refueling outage when the inspection period began. On April 19, 2003, the reactor was taken critical and on April 20, 2003, the plant was synchronized to the grid. The plant returned to full power on April 25, 2003. Power was maintained at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

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

1R01 Adverse Weather (71111.01)

a. Inspection Scope

The inspectors reviewed Off Normal Procedure 12, "Acts of Nature," to assess specified actions to protect systems and mitigate weather-induced risks from high winds, tornado and hot weather conditions. The inspectors questioned operations personnel regarding the actions that would be taken in response to a notification of high winds, and toured the switchyard to verify that there was not any loose debris that could potentially challenge switchyard integrity during high wind conditions.

The inspectors also verified that licensee personnel had completed the actions to prepare for the onset of warm weather as specified in Standard Operating Procedure 23, "Plant Heating System," Attachment 1, "Warm Weather Checklist." The inspectors used the checklist to verify that the prescribed actions had been completed for safety-related equipment such as the emergency diesel generators and the service water intake structure.

The inspectors reviewed condition reports to verify that problems regarding warm weather preparations were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

The inspectors conducted the following partial equipment walkdowns of accessible plant equipment during the scheduled refueling outage on the week of March 30, 2003:

- Emergency Diesel Generator 1-1;
- Service Water Pump P-7B;
- Low Pressure Safety Injection Pump P-67B; and
- Safety-Related 2400-Volt Bus 1C

The inspectors verified that the equipment used to minimize plant risk as specified in General Operating Procedure 14, "Shutdown Cooling Operations," was aligned as required in order to perform their design safety function and that required protected equipment barriers were in place. The material condition of the equipment was also inspected.

In addition, the inspectors performed partial walkdowns of the following two systems after the plant was returned to power operation:

- Emergency Diesel Generator 1-2 when Emergency Diesel Generator 1-1 was removed from service for planned maintenance on May 28, 2003; and
- Left Train of Component Cooling Water including Pumps P-52A and P-52C.

During the walkdown of Emergency Diesel Generator 1-2, the inspectors used Standard Operating Procedure 22, "Emergency Diesel Generators," to verify that the accessible components for the starting air, fuel oil, lube oil, jacket water, and service water systems were properly aligned to support the emergency diesel generator. The inspectors also reviewed open work orders associated with Emergency Diesel Generator 1-2 to verify that no significant corrective maintenance activities existed which could impact the system function.

Using Standard Operating Procedure 16, Attachment 2, "Component Cooling System Checklist," the inspectors verified that accessible components in the left train of component cooling water were appropriately aligned. The inspectors also assessed the material condition of Component Cooling Water Pumps P-52A and P-52C.

The inspectors reviewed condition reports related to equipment alignment issues to verify that problems were entered into the corrective action program with the appropriate significance characterization, and that planned and completed corrective actions were appropriate.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Area Walkdowns (71111.05Q)

a. Inspection Scope

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

- 1C Switchgear Room (Fire Area 4);
- Southwest Cable Penetration Room (Fire Area 26);
- Cable Spreading Room (Fire Area 2);
- Turbine Building (Fire Area 23);
- Emergency Diesel Generator Fuel Oil Day Tank Room (Fire Area 7); and
- Emergency Diesel Generator 1-1 Room (Fire Area 5).

The inspectors assessed the material condition of 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 corresponded with the equipment which was referenced in the applicable portions of the Updated Final Safety Analysis Report, Section 9.6, "Fire Protection." In addition, the inspectors verified that compensatory actions were being implemented, as required, for designated fire areas where compensatory actions were required.

The inspectors reviewed condition reports to verify that fire protection problems were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

.2 Fire Drill (71111.05A)

a. Inspection Scope

The inspectors observed an unannounced fire drill on June 11, 2003, to evaluate the fire brigade's readiness to fight fires. The drill included participation by two off-site fire departments which assisted the on-site fire brigade in fighting the simulated fire. The drill also included an injured worker that the fire brigade had to locate and remove from the fire area as well as a second individual reported as missing. The inspectors assessed the following fire fighting attributes:

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

- ability of fire brigade members to locate and remove injured personnel from the fire area;
- off-site fire department equipment compatibility with on-site fire fighting equipment; and
- fire brigade leader's ability to use fire fighting strategies in an effective manner.

The inspectors reviewed Security Implementing Procedure 22, "Emergency Services Personnel and Vehicle Access," to verify that security personnel correctly implemented procedural requirements when granting access to the protected area and in maintaining accountability of off-site fire department personnel that responded to the site. The inspectors also observed the post-drill critique to assess the licensee evaluators' ability to identify problems regarding fire fighting capabilities and reviewed condition reports to verify that problems identified during the post-drill critique were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors assessed flood protection measures for external flooding events including plant areas with safety-related equipment which were below flood levels susceptible to groundwater ingress. The inspectors reviewed preventive maintenance activities that had been completed on the watertight barriers designed for external flooding protection of safety-related equipment which included the component cooling water pump room, auxiliary feedwater pump room, emergency diesel generator room, and 2400-Volt Bus 1C switchgear room.

In addition, the inspectors reviewed applicable design basis documentation and relevant plant procedures to verify that the licensee's flooding mitigation plans and equipment were consistent with design requirements and risk analysis assumptions. Further, the inspectors reviewed condition reports to verify that corrective actions for previously identified problems flood protection problems were appropriate and had been properly implemented.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

a. Inspection Scope

The inspectors reviewed the licensee's inservice inspection (ISI) program for monitoring degradation of the reactor coolant system boundary and risk significant piping system

boundaries. Specifically, the inspectors conducted in-process observations and reviewed records for the following nondestructive examinations:

- ultrasonic (UT) examination of steam generator 1, circumferential weld, top head to upper shell weld 1-1401-271; and
- remote visual (VT-2) examination of the reactor pressure vessel (RPV) cavity.

The inspectors also reviewed the following reports:

- ultrasonic (UT) examination of safety injection system SSS-001 weld 217; and
- liquid penetrant (PT) examination of primary coolant system weld PCS-12-PSL-1H1-1.

The licensee addressed the results of steam generator tube inspections in a conference call conducted by the Office of Nuclear Reactor Regulation (NRR) on April 4, 2003. Prepared talking points consisting of a set of 14 questions facilitated the discussion.

These examinations were evaluated for compliance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspectors also reviewed ISI procedures, and personnel certifications and NIS-2 forms for Code repairs performed during the previous outage to confirm that ASME Code requirements were met.

The inspectors also verified that ISI-related problems were entered into the corrective action program with the appropriate significance characterization. In addition, the inspectors verified that operating experience was correctly assessed for applicability by the ISI group.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

.1 Quarterly Licensed Operator Requalification Observation

a. Inspection Scope

The inspectors observed one crew of licensed operators during simulator training on May 28, 2003. The inspectors assessed the operators ability to diagnose and use plant procedures to mitigate the following events:

- loss of component cooling water with a momentary loss of safety-related 2400-Volt Bus 1C, and a failure of Emergency Diesel Generator 1-1 and Component Cooling Water Pump P-52B to automatically start;

- Primary Coolant Pump P-50D seal failure and high vibrations;
- small break loss of coolant accident and subsequent failure of main turbine generator to automatically trip;
- failure of High Pressure Safety Injection Pump P-66A to automatically start when safety injection was initiated; and
- loss of all component cooling water.

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.

.2 Biennial Written Examination and Annual Operating Test Results (71111.11)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of individual written tests, Job Performance Measure operating tests, and simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee from January 6 through March 7, 2003. The overall results were compared with the Significance Determination Process (SDP) in accordance with NRC Manual Chapter 0609I, "Operator Requalification Human Performance Significance Determination Process."

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

The inspectors reviewed the licensee's maintenance effectiveness for planned and emergent issues associated with the Instrument Air system and the Control Room Heating, Ventilation and Cooling system which had high safety significance within the licensee's maintenance rule program.

The inspectors reviewed the licensee's maintenance rule performance indicators to verify that system performance had been correctly categorized in the maintenance rule program. The inspectors reviewed work order histories and condition reports written over the previous 2 years and verified that 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 condition reports and associated maintenance rule evaluations to verify that identified problems were appropriately dispositioned in

accordance with the maintenance rule program. The inspectors also verified that 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 tours to verify that equipment necessary to minimize risk was available for use. The following four activities were reviewed:

- Scheduled maintenance activities on April 8-14, 2003, while the primary coolant system was in a reduced inventory condition during the refueling outage;
- Scheduled maintenance outage for Emergency Diesel Generator 1-2 on May 13 and 14, 2003;
- Scheduled maintenance on High Pressure Safety Injection Pump P-66A on June 12, 2003; and
- Emergent repairs to Containment Air Cooler Fan V-4A ductwork on June 20, 2003.

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

In addition, the inspectors reviewed condition reports to verify that problems identified during the work activities were entered into the licensee's corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

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

.1 Operators Response to the Loss of Nonsafety-Related Bus 1E

a. Inspection Scope

On April 1, 2003, the inspectors observed the operators' response to the loss of nonsafety-related 2400-Volt Bus 1E and entry into Off Normal Procedure 23.3, "Loss of Refueling Water Accident." The inspectors also reviewed operator logs, operating procedures, alarm response procedures, and the root cause investigation for the event.

b. Findings

Introduction

The inspectors determined that a finding of very low safety significance (Green) associated with a Non-Cited Violation of Technical Specification 5.4.1 was self-revealed when incorrect potential transformer fuses were removed on safety-related 2400-Volt Bus 1D.

Description

On April 1, 2003, the plant was in Mode 6 (Refueling) with refueling activities in progress and the nozzle dams installed on the primary coolant system side of the steam generators. The purpose of the steam generator nozzle dams was to maintain the primary coolant system intact while the refueling cavity was flooded and to allow maintenance on the steam generators. The nozzle dams relied upon plant service air as a support system to maintain primary coolant system integrity.

Electrical repair workers commenced work on safety-related 2400-Volt Bus 1D in accordance with Work Order 24210302, "Megger Bus 1D." Work Order 24210302 prescribed potential transformer fuses FUZ/A1002-6 located in Breaker 152-203 on Bus 1D to be removed. In an effort to assist the electrical repair workers, the electrical supervisor, without reviewing or discussing the work order, requested the Work Control Center Senior Reactor Operator (SRO) to remove the 2400-Volt potential transformer fuses located in Bus 1D. However, fuses FUZ/A1202-4 were requested to be removed in addition to fuses FUZ/A1002-6. The Work Control Center SRO subsequently contacted the Operations Field Supervisor SRO to arrange for the Bus 1D potential transformer fuses to be removed as requested.

Following the pre-job brief conducted by the Operations Field Supervisor SRO, auxiliary operators removed fuses FUZ/A1002-6 and FUZ/A1202-4 as directed. The electrical repair workers, electrical supervisor, Operations Field Supervisor SRO, and a system engineer were present at Bus 1D when the fuses were removed.

Fuses FUZ/A1202-4 were the potential transformer fuses in the secondary circuit for Startup Transformer 1-2. Consequently, when the fuses were removed, an undervoltage condition for Startup Transformer 1-2 was created which initiated a trip signal that opened 2400-Volt AC Bus 1E Startup Transformer Incoming Breaker 152-303 and de-energized Bus 1E. The loss of Bus 1E resulted in the loss of the plant service air compressor, which in turn caused a loss of service air to the steam generator nozzle dams.

The inspectors observed the operators in the control room respond to the event and verified that all required actions were accomplished. About 30 minutes after the loss of Bus 1E, control room operators noted an increase in containment sump level in-leakage and indications that a nozzle dam on Steam Generator E-50B was leaking at a rate of about 4 gallons per minute. Operators entered Off Normal Procedure 23.3, "Loss of Refueling Water Accident," and restored service air header pressure through the use of

the plant instrument air compressors which stopped the nozzle dam leakage on Steam Generator E-50B.

The inspectors concluded that the failure to follow prescribed work instructions while performing work on safety-related Bus 1D was a performance deficiency warranting a significance evaluation.

Analysis

In accordance with Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," the inspectors determined that this issue was more than minor because if left uncorrected, continued nozzle dam leakage could lead to a more significant safety concern since reactor cavity level was adversely affected. The Initiating Events cornerstone was impacted by this event.

Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "SDP Phase 1 Screening Worksheet for IE [Initiating Events], MS [Mitigating Systems], and B [Barrier Integrity] Cornerstones," required that if the finding is assumed to degrade the safety of a shutdown reactor then use Appendix G, "Shutdown Operations Significance Determination Process." The inspectors utilized Inspection Manual Chapter 0609, "Significance Determination Process," Appendix G worksheet, "PWR Refueling Operation RCS Level > 23 Feet or PWR Shutdown Operation with Time to Boil > 2 hours and Inventory in the Pressurizer," to assess the risk significance of this event.

The inspectors determined that all the guidelines contained on the worksheet regarding core heat removal, inventory control, power availability, containment control, and reactivity were met. As a result, the finding did not require a quantitative assessment and was determined to be of very low safety significance (Green).

Enforcement

Technical Specification 5.4.1 required, in part, that written procedures be established, implemented, and maintained covering the activities specified in Regulatory Guide 1.33, Appendix A. Item 9 of Appendix A, stated, in part, that maintenance should be properly pre-planned and performed in accordance with documented instructions.

Documented instructions in Work Order 24210302, Step 6a stated, "Rack out the PT [Potential Transformer] fuses FUZ/A1002-6." Contrary to the above, on April 1, 2003, licensee personnel racked out fuses FUZ/A1202-4 which resulted in a loss of air to the steam generator nozzle dams and increased primary coolant system leakage past the dams which was a violation of Technical Specification 5.4.1.

However, because of the very low safety significance of this issue and because this issue was entered into the licensee's corrective action program, the NRC is treating this issue as a Non-Cited Violation (NCV 50-255/03-04-01) consistent with Section VI.A.1 of the NRC Enforcement Policy. This issue was entered into the licensee's corrective action program as Condition Report CAP034788, "Loss of Bus 1E Due to Removal of Start-Up Transformer 1-2 Undervoltage Potential Transformer Fuses."

.2 Main Turbine Protective Trip Device Testing

a. Inspection Scope

The inspectors observed operators perform low bearing oil, low vacuum, and overspeed protective trip testing for the main turbine on April 20, 2003, while the reactor was critical and at low power. The inspectors verified that testing was completed in accordance with Standard Operating Procedure 8, "Main Turbine and Generating Systems," and that the control room operators closely monitored and maintained the reactor in a stable condition during the testing.

b. Findings

No findings of significance were identified.

.3 Unexpected Power Increase Following Blended Addition to the Primary Coolant System

a. Inspection Scope

On May 8, 2003, a small reactor power increase occurred unexpectedly after boric acid blended with primary makeup water was added to the primary coolant system. The inspectors reviewed control room logs and primary plant computer data pertaining to reactor power, primary coolant system temperature, boric acid tank level and boric acid flow. The inspectors verified that control room operators responded as required by Technical Specification Surveillance Procedure DWO-1, "Operator's Daily/Weekly Items, Modes 1, 2, 3, and 4," to the unexpected power increase and verified that the unexpected power increase was not due to an operator error. The inspectors also reviewed the associated condition report 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.

1R15 Operability Evaluations (71111.15Q)

a. Inspection Scope

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

- Control Rod Number 25 Position;
- Nitrogen Station Number 2 to Steam Supply Valve CV-0522B For Auxiliary Feedwater Pump P-8B;
- Safety Injection Refueling Water Tank Recirculation Control Valves;
- Service Water Backup Supply to Auxiliary Feedwater Pump P-8C; and
- "A" Train of Control Room Heating and Ventilation System.

The inspectors interviewed cognizant engineers and reviewed supporting documents to assess the adequacy of the operability assessments. 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

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

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

The inspectors reviewed the planned actions to address operator workarounds to verify that the priority to resolve the deficiencies were appropriate when considering the potential impact on plant risk and safety. The inspectors also reviewed condition reports regarding operator workarounds to verify that the corrective actions were appropriate and had been implemented as scheduled.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors observed portions of post maintenance testing and reviewed documented testing activities following maintenance to determine whether the tests were performed as written. The inspectors also verified that applicable testing prerequisites were met prior to the start of the tests and that the effect of testing on plant conditions was adequately addressed by control room staff. The following six post maintenance test activities were reviewed:

- Check Valve CK-CA486, Instrument Air to Steam Supply Control Valve CV-0522B for Auxiliary Feedwater Pump P-8B, on April 19, 2003, following valve replacement;
- Disassemble, inspect and calibrate steam supply to Auxiliary Feedwater Pump P-8B, CV-0522B on April 19, 2003;

- Service Water Pump P-7A on May 15, 2003, following pump repack activities;
- Emergency Diesel Generator 1-1 on May 29, 2003, following maintenance outage;
- High Pressure Safety Injection Pump P-66A on June 12, 2003, following scheduled corrective and routine preventive maintenance; and
- Containment Air Cooler Recirculation Fan V-4A on June 20, 2003, following emergent repairs to fan ductwork.

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

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

The inspectors also reviewed condition reports to verify that post maintenance testing problems were appropriately characterized and that corrective actions had been adequately implemented.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

.1 Licensee Control of Outage Activities

a. Inspection Scope

The inspectors assessed the following aspects of the licensee's outage activities:

- Equipment Configuration Management: The inspectors verified that equipment designated in GOP-14, "Shutdown Cooling Operations," was maintained available as required to minimize plant risk;
- Review of Outage Activities: The inspectors reviewed selected risk significant activities, such as safety-related electrical bus outages, to verify that appropriate controls were in place to minimize plant risk as specified in the 3-Day Look Ahead Risk Assessments;
- Reactor Coolant System Temperature and Level Instrumentation: The inspectors verified that reactor coolant system temperature, level and pressure indication were available and being used to accurately monitor plant conditions;
- Electrical Power Availability: The inspectors verified that the configuration of the electrical system was maintained to ensure equipment necessary to minimize plant risk remained available;

- Decay Heat Removal System Monitoring: The inspectors monitored Shutdown Cooling System parameters to verify the system was operating properly;
- Spent Fuel Pool Cooling System Operation: The inspectors verified that methods to recover spent fuel pool cooling and inventory existed and that equipment necessary for cooling was available and not obstructed by ongoing outage activities;
- Reactor Coolant System Inventory Control: The inspectors verified that plant equipment needed for primary coolant system inventory control was appropriately maintained during periods of higher risk such as during mid-loop operations;
- Reactivity Control: The inspectors verified that the licensee identified and implemented the appropriate administrative controls on potential boron dilution paths; and
- Containment Closure Capabilities: The inspectors verified that appropriate provisions were in place to close containment during periods of higher risk such as mid-loop operations and refueling activities.
- Containment Cleanliness: The inspectors conducted cleanliness tours through containment during the refueling outage and after major work activities were completed.

The inspectors also reviewed condition reports for previously identified outage problems and verified that corrective actions were appropriate and had been implemented.

b. Findings

No findings of significance were identified.

.2 Reduced Inventory and Mid-Loop Conditions

a. Inspection Scope

The inspectors observed control room operators when the primary coolant system was in a reduced inventory condition on April 8 through April 14, 2003, to verify that the operators closely monitored and maintained positive control of primary coolant system level. The inspectors also verified that plant equipment required by General Operating Procedure 14, "Shutdown Cooling Operations," Attachment 14, "Reduced Inventory Checklist," was available and properly aligned to minimize plant risk. In addition, the inspectors verified that the licensee's procedures were appropriate and implemented as prescribed for the following activities:

- Containment closure capability was in place for the mitigation of radioactive releases, including appropriate staging of personnel and equipment, and current lists of inoperable containment penetrations and of cables through the equipment hatch;

- At least two independent, continuous indications of primary coolant system temperature and level were available; and
- At least two additional means of adding inventory to the primary coolant system were available, in addition to the residual heat removal system.

The inspectors also verified that Off-Normal Procedures were available which addressed reduced inventory operation and that contingency plans existed to re-energize vital electrical busses if the primary source of electrical power was lost.

b. Findings

No findings of significance were identified.

.3 Refueling Activities

a. Inspection Scope

The inspectors verified that fuel handling operations, including the removal, inspection, testing for leakage, reconstitution and insertion of fuel bundles were performed in accordance with Technical Specifications and licensee approved procedures. The inspectors also verified that the location of fuel assemblies was tracked, including new fuel, from core offload through core reload activities. The inspectors also verified that fuel assemblies were loaded into correct core locations through a sample of several fuel bundles.

The inspectors observed fuel handling activities on the refueling bridge and verified that licensee personnel appropriately verified fuel movements. The inspectors also verified that there were appropriate foreign material exclusion barriers for the reactor cavity and spent fuel pool areas.

Through reviews of periodic testing and operability verifications, the inspectors verified that refueling related equipment (including the reactor cavity seals), systems and interlocks were appropriately tested and operable.

b. Findings

No findings of significance were identified.

.4 Monitoring of Heatup and Startup Activities

a. Inspection Scope

The inspectors verified that General Operating Procedure 2, "Mode 5 to Mode 3," requirements were satisfied to ensure that required plant equipment was operable prior to conducting plant mode changes during plant heatup. The inspectors also verified that Technical Specification requirements pertaining to heatup limits and leakage limits for the primary coolant system were met. In addition, the inspectors verified that containment integrity was established as required.

Further, the inspectors observed the reactor startup and turbine generator synchronization to the electrical grid to verify that control room operators conducted plant startup activities in accordance with General Operating Procedure 3, "Mode 3 to Mode 2," and General Operating Procedure 4, "Mode 2 to Mode 1," respectively. The inspectors also observed portions of low power physics testing and verified that the results satisfied Technical Specification requirements.

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:

- Auxiliary Feedwater Pumps P-8A/B Fire Main Backup Line Flush - April 1, 2003;
- Service Water Flow Verification - April 4, 2003;
- Safety-Related 240 Volt Bus 1C; and
- Control Rod Drive System.

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

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

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

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

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

- Incore Instrument Cable Changes

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 Administrative Procedure 9.31, "Temporary Modification Control." The inspectors also verified that Technical Specification requirements regarding incore instruments were satisfied.

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

b. Findings

No findings of significance were identified.

1EP2 Alert and Notification System (ANS) Testing (71114.02)

a. Inspection Scope

The inspectors discussed the design, equipment, and periodic testing of the public ANS with the Emergency Preparedness (EP) staff to verify that the system was properly tested and maintained. The inspectors also reviewed procedures and records for a 12 month period ending March 2003 related to ANS testing, annual preventive maintenance, and non-scheduled maintenance. The inspectors reviewed the licensee's documentation for determining whether each model of siren installed in the emergency planning zone would perform as expected if fully activated. Records used to document and trend component failures for each model of installed siren were also reviewed to ensure that corrective actions were taken for test failures or system anomalies.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed ERO augmentation testing to verify that the licensee maintained and tested its ability to staff the ERO during an emergency in a timely manner. Specifically, the inspectors reviewed semi-annual, off-hours staff augmentation test procedures related to December 11, 2001; June 17, 2002; December 3, 2002; and June 10, 2003 drill records, primary and backup provisions for off-hours notification of the Palisades reactor facility emergency responders, and the current ERO rosters. The inspectors reviewed and discussed the EP staff's provisions for maintaining ERO call out lists.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the Nuclear Oversight staff's 2002 Observation Report to ensure that this audit complied with the requirements of 10 CFR 50.54(t) and that the licensee adequately identified and corrected deficiencies. The inspectors also reviewed the EP staff's 2003 self-assessments and critiques to evaluate efforts to identify and correct weaknesses and deficiencies. Additionally, the inspectors reviewed a sample of EP items, condition reports, and corrective actions related to the facility's EP program to determine whether corrective actions were acceptably completed.

Finally, the inspectors reviewed a licensee-identified violation related to two actual emergency plan activations to determine if the licensee effectively implemented the requirements of the Emergency Plan. The results of this review is included in Section 4OA7 of this report.

b. Findings

No findings of significance were identified.

1EP6 Emergency Plan Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed a simulator training session for one crew of licensed operators on May 28, 2003, in which the Shift Supervisor was required to implement the emergency plan in response to simulated plant conditions. Licensee Emergency Planning personnel had pre-designated that the opportunities for the Shift Supervisor to classify the event and make required notifications during the training session would be evaluated and included in the drill and exercise performance indicator data. The inspectors verified that the Shift Supervisor classified the emergency condition and completed the required notifications to State and Local Police authorities in an accurate and timely manner as required by the emergency implementing procedures. The inspectors also reviewed the Emergency Planning Evaluator's summary report from the training session to verify that the data included in the drill and exercise performance indicator was accurate.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed the data submitted by licensee personnel for April 2002 through March 2003 to verify that the following six Performance Indicators were reported accurately:

- High Pressure Safety Injection Pump Unavailability;
- Unplanned Scrams per 7,000 Critical Hours;
- Unplanned Scrams With Loss of Normal Heat Removal;
- Alert and Notification System;
- Emergency Response Organization Drill Participation; and
- Drill and Exercise Performance.

To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in Revision 2 of Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The inspectors reviewed samples of records regarding maintenance rule performance, control room logs, maintenance activities which resulted in High Pressure Safety Injection Pump unavailability time, monthly operating data reports and licensee event reports.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

(Closed) Licensee Event Report (LER) 03-002, "Incomplete Surveillance of Fuel Handling Area Ventilation System"

The inspectors reviewed LER 03-002 to verify that the event was accurately described and to assess planned corrective actions.

This issue was previously documented in Inspection Report 50-255/03-02 as a finding of very low safety significance (Green) and a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control." Specifically, licensee personnel failed to ensure that testing of the fuel handling area ventilation system was performed in accordance with test procedures which incorporated the appropriate requirements and acceptance limits specified in Technical Specification 5.5.10, "Ventilation Filter Testing Program."

The inspectors did not identify any new information in the LER which was of concern and concluded that the completed corrective actions which modified the system to facilitate testing in accordance with Technical Specification requirements were appropriate. This LER is closed.

4OA5 Other Activities

.1 Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles (TI 2515/150)

a. Inspection Scope

The objective of Temporary Instruction (TI) 2515/150, Revision 1, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles," was to implement an on-site NRC review of the licensee's activities in response to NRC Bulletin 2002-02, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs," to verify compliance with applicable regulatory requirements. In response to NRC Bulletin 2002-02, Palisades Nuclear Plant calculated the effective degradation years based on time and head temperature. This placed the plant in the "Low Susceptibility" category for leakage of the penetration nozzles. As a result, the licensee performed a 100 percent bare metal visual inspection of the reactor pressure vessel (RPV) head and penetration nozzles. The inspectors interviewed inspection personnel, and reviewed procedures and inspection reports, including photographic and video documentation, to assess the licensee's efforts in conducting the visual examination of the RPV head.

Summary

The licensee did not identify any leaking vessel head penetration (VHP) nozzles.

b. Evaluation of Inspection Requirements

In accordance with the requirements of TI 2515/150, the inspectors evaluated and answered the following questions:

a. Was the examination:

1. Performed by qualified and knowledgeable personnel?

Yes. The licensee conducted a direct visual examination of the head with staff members certified to Level II as VT-2 examiners in accordance with programs meeting the American Society for Nondestructive Testing Recommended Practice SNT-TC-1A.

2. Performed in accordance with demonstrated procedures?

Yes. The licensee conducted direct visual examinations in accordance with the requirements of Nuclear Work Order #24111706, "Perform Base Metal Head Inspection of All Head Penetrations on Reactor Head," which referenced Nondestructive Examination Procedure NDT-VT-09, "Visual Examination of Reactor Pressure Vessel Head Penetrations," Revision 1, approved January 19, 2003. Revision 1 of Electric Power Research Institute Report 1006296, "Visual Examination for Leakage of PWR Reactor Head Penetrations on Top of RPV Head," was used as a reference document for the procedure.

3. Able to identify, disposition, and resolve deficiencies?

Yes. The inspectors concluded that the head access and procedural resolution requirements for the direct visual examination of the vessel head was adequate to detect boric acid deposits. The licensee's examinations identified two boric acid deposits on the head: one approximately 4" square in shape, and approximately 1/16" in thickness; and another approximately 10" square and approximately 1/8" in thickness. Both deposits were a distance from a nozzle and did not streak or run into a nozzle. Both deposits were removed. Because of the location of these deposits, the licensee did not consider the deposits to be indicative of nozzle leakage. The licensee documented the vessel head inspection results in the corrective action program (CAP034719).

4. Capable of identifying the primary water stress corrosion cracking phenomenon described in the bulletin?

Yes. The inspectors determined through interviews with inspection personnel and reviews of the work order and examination reports that the licensee's efforts were capable of detecting and characterizing leakage from cracking in VHP nozzles. The inspectors determined that the inspection personnel had access to each of the head penetrations.

b. What was the condition of the reactor head (debris, insulation, dirt, boron from other sources, physical layout, viewing obstructions)?

The reactor head was covered with two layers of blanket insulation; an inner layer in contact with the head and a second layer at 90 degrees to the first layer. Previous head insulation materials included an asbestos wet pack, which left an insulation residue and deposits on the head. To protect the blankets, metal flashing, held in place by a rafter system, was set at approximately 8 inches above the outer layer of blankets. There was no boric acid on the flashing and the blankets were dry. The blankets and flashing were all removed prior to the examination. There were metal shavings, carbon steel scale and rust colored streaks on the head. The source of the steel scale and rust was determined to be control rod drive mechanism seal leakage. Two areas of tightly adhered boric acid were also identified (see question d., "What material deficiencies (associated with the concerns identified in the bulletin) were identified that required repair?"). The licensee had sufficient access to all 53 penetration nozzles plus head vent to permit a 360 degree inspection.

The inspectors questioned if the steel scale and rust deposits (CAP034719, Reactor Head Staining and Scaling, March 31, 2003) would obstruct or mask leakage deposits at the VHP nozzle-to-head interface. A conference call with the licensee, NRC Region III, and NRC NRR resolved the issue, in that, it was agreed that the steel scale and rust deposits would not mask any boric acid leakage around the nozzles.

- c. Could small boron deposits, as described in Bulletin 2001-01, be identified and characterized?

Yes. The inspectors determined through interviews with inspection personnel and reviews of the inspection procedure and examination reports, that small boron deposits, as described in Bulletin 2001-01, could be identified and characterized.

- d. What material deficiencies (associated with the concerns identified in the bulletin) were identified that required repair?

The licensee identified two boric acid deposits on the head: one approximately 4" square in shape, and approximately 1/16" in thickness; and another approximately 10" square and approximately 1/8" in thickness. Both deposits were a distance from a nozzle and did not streak or run into a nozzle. Both deposits were removed. Because of the location of these deposits, the licensee did not consider the deposits to be indicative of nozzle leakage. There were no other material deficiencies associated with the 53 VHP nozzles, or head vent nozzle that were considered indicative of leakage.

- e. What, if any, significant items could impede effective examinations?

The inspectors questioned if the steel scale and rust deposits (CAP034719, Reactor Head Staining and Scaling, March 31, 2003) would obstruct or mask leakage deposits at the VHP nozzle-to-head interface. A conference call with the licensee, NRC Region III, and NRC NRR resolved the issue, in that, it was agreed that the steel scale and rust deposits would not mask any boric acid leakage around the nozzles.

- f. What was the basis for the temperatures used in the susceptibility ranking calculation?

In Bulletin 2002-02, the Effective Degradation Years (EDY) was used as a basis to establish appropriate inspection programs for VHP nozzles based on increasing susceptibility to nozzle cracking with increasing EDY. Westinghouse Calculation CN-WFE-02-5, "Upper Head Fluid Temperature for Palisades Reactor," Cycle Effective Full Power Days from Reactor Engineering Fuel Management Plan, and Cycle Reactor Head Temperature (from hot leg temperature) were used as inputs for the Reactor Head Effective Degradation Years Calculation (EA-JRP-02-001, Revision #0).

- c. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. D. Cooper and other members of licensee management on July 26, 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

Interim exit meetings were conducted for:

- Inservice inspection (71111.08) and Temporary Instruction 2515/150 with Mr. P. Harden on April 3, 2003 via telephone.
- Licensed operator requalification inspection (71111.11B) with Mr. R. Bender, Operations Requalification Training Supervisor, on April 4, 2003 via telephone.
- Emergency preparedness inspection with Mr. D. Cooper and other members of licensee management on June 27, 2003.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a NCV.

10 CFR 50.47 (b) (10) requires, in part, that a range of protective actions be developed for emergency workers. The licensee is committed to the guidance in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," which states, in part, that the licensee shall account for all individuals onsite within 30 minutes of the start of an emergency. The licensee's emergency plan requires that personnel accountability shall be completed in approximately 30 minutes. As described in Apparent Cause Evaluation (ACE) 002959, for the Alert emergency classifications declared on March 18 and March 25, 2003, the licensee failed to complete onsite accountability within 30 minutes. However, because the licensee was able to complete accountability within 57 and 40 minutes, respectively, and had the capability to maintain accountability for the duration of the events, this violation is not more than of very low significance, and is being treated as a Non-Cited Violation.

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Cooper, Site Vice President
R. Bender, Operations Requalification Training Supervisor
T. Blake, Manager, Emergency Planning
T. Fouty, ISI Engineering Programs Lead
P. Harden, Director, Engineering
G. Hettel, Manager, Maintenance and Construction
D. G. Malone, Supervisor, Regulatory Assurance
D. J. Malone, Site Director
G. Packard, Operations Manager
R. Remus, General Plant Manager

Nuclear Regulatory Commission

J. Eads, Project Manager, NRR

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-255/03-04-01 NCV Incorrect Potential Transformer Fuses Removed (Section 1R14.1)

Closed

50-255/03-04-01 NCV Incorrect Potential Transformer Fuses Removed (Section 1R14.1)

50-255/03-002 LER Incomplete Fuel Handling Area Ventilation System Surveillance
(Section 4OA3)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

1R01 Adverse Weather Protection

SOP-23	Attachment 10, Warm Weather Checklist	Revision 17
Procedure - 4	Administrative Procedure - Operations Organization, Responsibilities and Conduct	Revision 23
ONP-12	Off Normal Procedure - Acts of Nature	Revision 17
EOP-9	Functional Recovery Procedure	Revision 13

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP036184	2003 Performance of Warm Weather Checklist Related Issues
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1R04 Equipment Alignment

Plant Procedures and Miscellaneous Documents

SOP-22, Attachment 8	Checklist CL 22.1, Diesel Generators System Checklist	Revision 34
SOP-22, Attachment 9	Checklist CL 22.2, Fuel Oil System Checklist	Revision 34
GOP-14	Shutdown Operations	Revision 18
Piping and Instrument Diagram M-209	Component Cooling System, Sheets 1, 2, and 3	Revision 62 Revision 31 Revision 48
Piping and Instrument Diagram, M-204	Safety Injection Containment Spray and Shutdown Cooling System	Revision 24
SOP-16, Attachment 2	Checklist 16, Component Cooling System	Revision 23

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP035961	EDG 1-2 Room Fan V-24D Discharge Gravity Damper Does Not Fully Close
CAP036299	MV-CC134, CCW Surge Tk T-3 Chemical Addition Supply Green Seal Missing

1R05 Fire Protection

Plant Procedures

FP-MS-1	Fire Protection Check Sheet - Monthly Inspection and Testing of Fire Doors for Fire Areas 2, 4, 5, 7, 23, 26	Revision 2
FPSP-SI-1	Data Sheet for Alarm Bells and Ionization Smoke Detectors for Fire Areas 2, 4, 26	Revision 2
FPSP-WP-1	Safety-Related Fire Door Data Sheet Fire Areas 2, 4, 5, 7, 26	Revision 1
FPSP-SO-2	Safety-Related Fire Door Data Sheet for Fire Areas 2, 5, 7, 26	Revision 0
ONP-25.1	Off-Normal Procedure - Fire Which Threatens Safety-Related Equipment	Revision 12
ONP25.2	Off-Normal Procedure - Alternate Safe Shutdown Procedure	Revision 18
FPSP-RI-2	Ionization Smoke Detector Locations, Containment Building, Attachment 2	Revision 1
FPSP-RP-12	Fire Rated Assembly/Fire Protection Assembly Checkoff/Comment Sheet for Fire Area 4	Revision 2
FPSP-RO-8	Containment Building Fire Hose Replacement, Nozzle Inspection and Station Valve Check	Revision 1
FPSP-RO-9	Fire Sprinkler System Inspection for Fire Areas 2, 4, 5, 26	Revision 0
FPSP-MO-1	Fire suppression Water System Valve Alignment for Fire Areas 2, 4, 23, 26	Revision 4
FPSP-MO-2	Fire Hose Reel Station and Fire Hose Rack Station for Fire Area 23	Revision 0
FPSP-QO-2	Fire Protection Sprinkler System Water Flow Switch Alarm Check Sheet for Fire Areas 2, 4, 5, 23, 26	Revision 1
FPSP-AO-2	Fire Suppression Water System Fire Valve Operation Data Sheet for Fire Areas 2, 4, 5, 23, 26	Revision 3
FPSP-RO-6	Fire Hose Reel/Rack Station Checksheet for Fire Area 23	Revision 0
FPSP-RO-7	Inside Fire Hose Hydrostatic Pressure Test Data Sheet	Revision 2

FPSP-RP-11	Fire Barrier Penetration Seal/Conduit Seal Inspection Form for Fire Areas 2, 4, 5, 7, 23, 26	Revision 5
FPSP-RM-5	Palisades Fire Damper Sheet for Fire Area 2	Revision 2
FPIP-2	Fire Emergency Responsibility and Response	Revision 6
FPIP-6	Fire Drills	Revision 9
FPIP-3	Plant Fire Brigade	Revision 8
SIP-22	Emergency Services Personnel and Vehicle Access	Revision 5

Miscellaneous Documents

EA-PSSA-00-001	Palisades Plant Post Fire Safe Shutdown Summary Report for Fire Areas	Revision 1
BTP ASB 9.5-1	U.S. NRC Branch Technical Position 9.5-1 - Guidelines for Fire Protection for Nuclear Power Plants	Revision 1
	Consumer Power Company - List of Changes and Response to Appendix A to Branch Technical Position APCSB 9.5-1 and Regulatory Guides 1.78 and 1.101	Revision 2 August 24, 1996
FSAR 9.6	Updated Final Safety Analysis Report, Section 9.6 - Fire Protection	Revision 23
EA-APR-98-008, Section 4.4	Analysis of Specific Barrier Segments; Fire Barrier Segment 147C/149F (Auxiliary Building @ WL 613'6")	
	Shift 3, Unannounced Fire Drill Objectives and Scenario	June 11, 2003

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP036288	Unannounced June 11 Fire Drill Critique Items
CAP036323	Conduct Evaluation of Escort Duty Responsibilities

1R06 Flood Protection Measures

Plant Procedures

SOP-3, Attachment 13	Checklist CL 3.4, Plant Flood Door System Checklist	Revision 53
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ONP-12	Acts of Nature	Revision 17
MSM-M-16	Inspection of Watertight Barriers	Revision 10

Miscellaneous Documents

NUREG 0820, Table 4.3	Inspection Program for Flood Doors at Palisades Plant	October 1982
WO24114392	Work Order, Door 170 Failed Chalk Test at Lower W Corner	February 15, 2002
WO24111281	Work Order, Annual Inspection of Watertight Barriers	December 24, 2001
FPS024	Preventive Maintenance - High Use Watertight Door Inspection / Repair (WO24212759)	April 1, 2003
MSM071	Preventive Maintenance - Annual Inspection of Watertight Barriers (WO24212887)	December 20, 2002

Condition Reports Reviewed To Assess Corrective Actions

CPAL0104120	Failed Watertight Barrier Inspection, Door 170, North Outside Diesel Door
CPAL0104137	Potential Adverse Trend: Material Condition Watertight Barriers
CPAL0002853	Annual Inspection of Watertight Barriers Identified Failures and Prompt Actions Not Taken
CAP034753	Water Tight Door #142 Failed Inspection Criteria

1R08 Inservice Inspection

NDT-PT-01	Liquid Penetrant Examination	February 11, 1998
NDT-UT-33	Ultrasonic Examination of Austenitic Welds	September 17, 2002
NDT-UT-11	Ultrasonic Examination of Vessel Welds	March 5, 2003
CAP034273	ISI Procedure NDT-PT-01 Rev. 13 Issues	March 20, 2003
CAP034255	Discrepancy CMS Written Practices/Procedures with Respect to Training Requirement	March 20, 2003
CAP034213	Use of Non-Qualified UT Search Unit During ISI Requires Rework	March 19, 2003

1R11 Licensed Operator Requalification

LOR-SPE-39 Licensed Operator Requalification Training, Simulator Exercise Guide-39 Revision 0

1R12 Maintenance Effectiveness

	Critical Service Water Maintenance Rule Scoping Document and Associated Maintenance Rule Performance Indicators	Revision 2
	Instrument Air System Health Assessments	July 31, 2002
EM - 20	Performance Monitoring Program	Revision
EM - 25	Maintenance Rule Program	Revision
	Action Plan 05 Closeout Instrument Air Compressors C-2A and C-2C - Recommendation for Removal from Maintenance Rule Category (a)(1) Status	August 18, 1997
	Complete Work Order History for Instrument Air Compressors C-2A and C-2C	as of April 23, 2003
	Palisades Plant - Maintenance Rule Periodic Refueling Assessment for the Period August 1, 2000 through July 31, 2002	February 7, 2003
	Quality Inspection Checklist for PO18880, Charcoal Trays	January 10, 2003
	Technical Specification Test - RT-85D, Inplace HEPA and Charcoal Filter Testing Control Room Ventilation	January 11, 2003

Condition Reports Reviewed to Assess Maintenance Rule Evaluations and Corrective Actions

CPAL0003023	Plant Air Compressors (C-2A/C-2C) Loading Problem After Preventive Maintenance on C-2C
CPAL00100091	Compressor C-2A Failed to Load After Repairs to C-2C
CPAL01014439	Instrument Air Compressor C-2A Removed from Service due to Stuck unloader Valve
CAPL0102974	Wrong Solenoid Valve Determinated for Work on Instrument Air Compressor C-2A
CPAL0104053	High Temperature on Instrument Air Compressor C-2C

CPAL0201726	Upper West Unloader Intake Valve Failed on C-2A Instrument Air Compressor
CAP034957	Failure of Instrument Air Compressor to Run
CAP034983	Instrument Air Compressor C2C Leaking Water From Air Intake

Condition Reports Reviewed to Assess Corrective Actions

CPAL0103310	Potential Green Finding from PI&R Inspection
CPAL010251	Maintenance Rule Periodic Assessment Observation Adverse Trend in Resolution of Category (a)(1) Issues
CPAL010252	Maintenance Rule Periodic Assessment Observation Adverse Trend in Repeat Category (a)(1) Issues
CPAL010253	Maintenance Rule Periodic Assessment Multiple Compressor-Related Performance Issues Placed in Category (a)(1)
CA017239	Corrective Action for CPAL0003023D
CAP032907	Equipment Deficiencies Complicate RT-85D
CAP032910	Lack of Contingency Plans for RT-85D
CAP032902	Unknown That Charcoal for RT-85D Freon Test Equipment and Charcoal Trays Differ
CAP032900	Insufficient Guidance in Work Order for CR HVAC Charcoal Tray Gasket Replacement

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP033278	Compressor Related System Performance Issues Continue
CAP032927	Weakness in Timely Resolution of Maintenance Rule Category (a)(1) Issues

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

Miscellaneous Documents

GOP-14, Attachment 16	Shutdown Operation Equipment Sheets, Shutdown Safety Risk Assessment, April 8-14, 2003
4.02	Administrative Procedure - Control of Equipment Revision 21

RE-138	<p>Technical Specification Surveillance Test and Basis</p> <p>Operator's Daily Risk Reports for May 13-14, June 11-13, and June 20, 2003</p> <p>Scheduled Maintenance Activities for April 8-14, May 13-14, June 11-13, and June 20, 2003</p> <p>Shift Activities Sheets, Operations, April 8-14, May 13-14, and June 11-13, 2003</p> <p>Operation's Log Entries Report, April 8-14, May 13-14, June 11-13, and June 20, 2003</p>	Revision 2
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Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP035701	<p>Technical Specification Basis for Surveillance 3.3.5.2 Contains Inaccurate Statement</p>	
CAP035694	<p>Inadequate Description of Effect on Plant Conditions in Work Order</p>	
CAP035696	<p>Artificially High EOOS Score for RE-138</p>	
CAP036305	<p>Possible Evidence of Motor Bearing Degradation for CRS Fan V-4A</p>	

1R14 Non-Routine Plant Evolutions and Events

Plant Procedures

GOP-4, Attachment 1	<p>General Checklist-4, Mode 2 to Mode 1</p>	Revision 15
SOP-8	<p>Main Turbine and Generating Systems</p>	Revision 60
ONP 23.3	<p>Off Normal Procedure - Loss of Refueling Water Accident</p>	
DWO-1	<p>Operator's Daily/Weekly Items Modes 1, 2, 3, and 4</p>	Revision 64
RT-8D	<p>Technical Specification Surveillance Test -</p>	

Miscellaneous Documents

MRS 2.2.2 PAL-22	<p>Appendix C Pressurization System Schematic - Steam Generator Nozzle Dams</p>	Revision 7
WO 24210302	<p>Work Order - Megger Bus 1D</p>	

Plant computer trend plots for steady state reactor core power level, average temperature hot and cold legs, heat balance power - steady state, boric acid flow rate, boric acid tank levels

May 8, 2003

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP035238	Manual Main Turbine Trip
CAP035330	Turbine Overspeed Actuated Outside Desired Range During Test
CAP035633	Did Not See the Effects of Boron During Blend to the Volume Control Tank
CAP034788	Loss of Bus 1E Due to Removal of Start-UP Transformer 1-2 Undervoltage Potential Transformer Fuses

1R15 Operability Evaluations

CAP035000	CK-CA486 Failed Acceptance Criteria of T-278-2
CAP035318	Air Leak Downstream of CK-CA486
CAP035200	Control Rod No 25 Cannot Meet RO-19 Physical Position Acceptance Criteria
CAP035913	Safety Injection Refueling Water Tank Recirculation Control Valves Do Not Meet RO-119 Acceptance Criteria
CAP0310174	Potential Blockage in Service Water Backup Supply to Auxiliary Feedwater Pump P-8C
CAP032767	Control Room HVAC A Train Unacceptable Charcoal Filter (VFC-26) Bypass Leakage

Miscellaneous Documents

T-278-2	Special Test, Nitrogen Station No 2 Performance Test	Revision 2
IN 95-79	NRC Information Notice - Microbiologically Influenced Corrosion of Emergency Diesel Generator Service Water System	
RO-119	Technical Specification Surveillance Test and Basis Document - Inservice Testing of Engineered Safeguards Valves CV-3027 and CV-3056, completed April 15, 2003	Revision 9

CAP035000	CK-CA486 Failed Acceptance Criteria of T-278-2	
RT-71L	Technical Specification Surveillance Procedure - Technical Specification Admin 5.5.2 Pressure Test of ESS Pump Suction Piping, completed March 31 and April 4, 2003	Revision 11

1R16 Operator Workarounds

Plant Procedures

AP-4.12	Operator Work-Around Program	Revision 0
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Miscellaneous Documents

	Palisades Operator Work Arouns	June 18, 2003
	Palisades Operator Challenges	June 9, 2003
	Control Room Deficiencies	June 18, 2003
	Operations Concerns	June 18, 2003

Condition Reports Reviewed to Assess Corrective Actions

CAP031931	Push Buttons Stick When Pushed on PIC 0101A/B (Pressure Control A & B)	
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1R19 Post Maintenance Testing

Plant Procedures

QO-21	Inservice Test Procedure - Auxiliary Feedwater Pumps	Revision 22
QO-14	Technical Specification Surveillance Test and Basis Document - Inservice Test Procedure - Service Water Pumps - completed May 15, 2003	Revision 21
AP-5.19	Administrative Procedure - Post Maintenance Testing	Revision 11
MO-7A-1	Technical Specification Test - Emergency Diesel Generator 1-1 completed May 29, 2003	Revision 57
SPS-E-11	480 Volt Breaker Inspection and Repair	Revision 3

Work Orders

24321281	CK-CA486, Instrument air to CV-0522B	April 19, 2003
24212606	P-8B Steam Supply Valve Calibration	April 19, 2003
24212810	Disassemble and Inspect CV-0522B Actuator	April 19, 2003

GOP-5, Attachment 1	General Checklist-5, Power Escalation in Mode 1	Revision 28
GOP-14	Shutdown Cooling Operations	Revision 18
GOP-14, Attachment 14	Reduced Inventory Checklist	Revision 18
RT-191	Technical Specification Surveillance Procedure and Basis Document - Startup Physics Test Program	Revision 3
T-94	Special Test Procedure - Visual Verification of Core Loading - completed April 3, 2003	Revision 12

Condition Reports Reviewed to Assess Corrective Actions

CAP034380	MO-3009 - Packing Gland Follower Reassembled Incorrectly
CAP034375	Foreign Material Found In Secondary Side of B Steam Generator Hot Leg
CAP034844	Framatome Reload Safety Analysis Does Not Yet Support Mode 5 Entry
CAP034873	Framatome Reload Safety Analysis Does Not Yet Support Mode 3 Entry
CAP035266	Boric Acid Found on MO-3041, SI Tank T-82A Outlet
CAP035371	Charging Pump P-55A Failed to Meet QO-17 Surveillance Speed
CAP034934	Step 5.2.g.1.c of RI-6A, Containment Pressure Channel Calibration, Not Completed as Written
CAP034322	Steam Generator Snubber 60 (SNB-60) Failed Functional Testing
CA019228	Generic Letter 91-18 Timeliness Justification for Component Cooling Water Heat Exchanger Service Water Outlet Control Valve CV-0826
CA019226	Generic Letter 91-18 Timeliness Justification for Boric Acid on Primary Coolant Pump P-50C Component Cooling Water Flange
CA018992	Generic Letter 91-18 Timeliness Justification for Use of Rockbestos Cable

CA015903	Generic Letter 91-18 Timeliness Justification for Condition Report C-PAL-01-2129
CA018995	Generic Letter 91-18 Timeliness Justification for Fire Alarm Panel EC-49/49A
CA019220	Generic Letter 91-18 Timeliness Justification for Support Steel for Letdown Heat Exchanger, E-58
CA019228	Generic Letter 91-18 Timeliness Justification for Loose Studs and Missing Nuts on XJ-0429
CA019227	Generic Letter 91-18 Timeliness Justification for Service Water Piping Does Not Meet FSAR for Waterhammer
CA019224	Generic Letter 91-18 Timeliness Justification for Seismic Qualification of Turbine Building High Pressure Air Cross-Tie to Engineering Safeguards
CA018993	Generic Letter 91-18 Timeliness Justification for Screenhouse Sprinkler System
CA019255	Generic Letter 91-18 Timeliness Justification for Diesel Generator Room Damper D-27

Condition Reports Reviewed to Assess Characterization of Identified Problems

CAP035298	Some Louvers on CRDM Ductwork Identified to be Blocked During Mode 3 Walkdown
CAP035300	Loose Cables Found on 590' Elevation of CTMT
CAP035337	Delta T PWR Indication Lost on B, C Channel TMM
CAP035334	Trouble Transferring 4160 Volt Busses From Startup Power to Station Power

1R22 Surveillance Testing

Completed Technical Specification Surveillance Tests

RT-129	Technical Specification Surveillance Test - Functional Test of Bus 1C Undervoltage Relays - completed April 7, 2003	Revision 4
RO-22	Technical Specification Surveillance Test - Control Rod Drop Times - completed April 19, 2003	Revision 17

RO-216	Service Water Flow Verification	Revision 2
SWS-I-4	Temporary Replacement of SWS Instrumentation for RO-216 and T-218	Revision 3

Miscellaneous Documents

T-345	Special Test, AFW Pumps P-8A/B Firemain Backup Line Flush	Revision 3
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Condition Reports Reviewed to Assess Problem Identification Characterization

CAP031074	Emergency Feed Supply Line to AFW Pumps Subjected to Sand Accumulation
CAP033959	Pipe Blockage of Fire Protection System to Aux Feedwater System Cross Tie
CAP034101	Pipe Blockage of FPS to P-8A/B AFW Cross Tie (To Determine Extent of Condition)
CAP034157	Pipe Blockage of Service Water System to P-8C Aux Feedwater System Cross Tie
CAP034897	RO-216 Acceptance Criteria Not Met

1R23 Temporary Plant Modifications

Plant Procedures

AP-9.31	Temporary Modification Control	Revision 19
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Temporary Modification Packages

TM-2003-014	Change locations of cabling at the reactor head for the incore detectors to provide the 16 qualified detector installations
SDR-03-0703	50.59 Screen for TM-2003-014 Software Change Request - Swap CETs for TM-2003-014
WO243212784	Work Order - Install TM-2003-014 DBD Change Request - TM-2003-014 Installation of Software Changes per TM-2003-014
EAR-2003-0100	Engineering Assistance Request - Temporary Mod to Re-route ICI Cables for Qualified CET's

4OA5 Other

Miscellaneous Documents

NDT-VT-09 Visual Examination of Reactor Pressure Vessel January 19, 2003
Head Penetrations

Condition Reports Reviewed To Assess Problem Identification Characterization

CAP034719 Reactor Head Staining and Scaling

1EP2 Alert and Notification System (ANS) Testing

Public Warning System Replacement Project; dated October 2002

Public Warning System Operations Procedure; dated January 2, 2003

PAL PWS; Public Warning System Operations Procedures; dated January 2, 2003

Summary of Public Warning System Tests; dated April, 2002 through March 2003

Test Data Summary for Siren/PA Maintenance; dated April 23, 2002

1EP3 Emergency Response Organization (ERO) Augmentation Testing

Emergency Augmentation System Instrumentation Booklet; dated June 9, 2003

Palisades Emergency Response Organization Four Member Team List; dated June 25, 2003

EI-2.2; Emergency Staff Augmentation; dated July 10, 2002

Semi-Annual Augmentation Test Results for December 11, 2001, June 18, 2002, December 3, 2002, and June 10, 2003

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

Palisades Nuclear Plant Site Emergency Plan, Section 6.4; Protective Actions; Revision 8

EI-12.1; Personnel Accountability and Assembly; dated June 24, 2002

Emergency Preparedness CAP Activity Report; dated May 29, 2003

Palisades Nuclear Plant Emergency Preparedness Evaluation; dated May 27, 2003

A-01-008; Nuclear Oversight Department Palisades Emergency Preparedness Audit; dated May 17, 2001

2002-002-8-028; Nuclear Oversight Observation Report; dated July 18, 2002

2002-004-8-036; Nuclear Oversight Observation Report; dated December 30, 2002

Tabletop Drill Report; 2003 Palisades 1st Quarter Drill; dated February 4, 2003

Performance Indicator Form, Attachment 1; Emergency Preparedness Performance Indicators/Actual Event; dated February 16, 2003

Emergency Preparedness Summary Report; Palisades Alert, dated March 18, 2003

Emergency Preparedness Summary Report; Palisades Alert, dated March 25, 2003

ACE 002959; Accountability During an Alert Emergency Classification Greater Than 30 Minutes; dated April 17, 2003

CA016220; Develop and Implement an Emergency Preparedness Steering Committee; dated June 7, 2002

CA019674; Conduct Brainstorming Session For Initial NRC Communications; dated May 12, 2003

CAP000340; Discrepancy Between Utility Protective Action Recommendation and the State Protective Action Order During PALEX2002 Drill; dated May 5, 2002

CAP030163; Emergency Implementing Procedure EI-13, Evaluation/Reassembly, Would Be Difficult To Implement; dated April 24, 2002

CAP030164; PRACTEX 2002 Drill, Site Siren Was Not Audible Inside the East Rad Waste Building; dated May 6, 2002

CAP030184; Classification For General Emergency Was Not Timely During PRACTEX2002 Drill; dated May 3, 2002

CAP030776; Some Emergency Action Levels In Emergency Plan Do Not Match the EALs in Procedure EEI-1; dated April 24, 2002

CAP030777; Inconsistency Noted Between Operating Crews In Declaring Emergency Action Levels; dated March 1, 2002

CAP033270; Review Expectations for "Time to Classify" With SEDs and EOF Directors; dated February 5, 2003

CAP033437; Received EK-1129 Service Water Bay Low Alarm; dated February 16, 2003

CAP034196; Public Address System Insufficient for Broadcast of Emergency Information; dated March 19, 2003

CAP034202; Challenges to Effective Emergency Response Call In; dated March 19, 2003

CAP034271; Accountability During an Alert Emergency Classification Greater Than 30 Minutes; dated March 20, 2003

CPAL034276; Assembly Area Requirements Not Clear For Off-Site Emergency Response Organization Responders; dated March 20, 2003

CAP035483; Potential Areas For Organizational Improvements During Event Response; dated April 29, 2003

CPAL035877; Revisions to Site Emergency Plan; dated May 23, 2003

CAP036394; Review Potential Enhancements To Augmentation Testing; dated June 26, 2003

CAP036396; Update EP Regulatory Assessment Performance Indicator Guidelines; dated June 26, 2003

CAP036397; Review 03/25/03 Classification/Notification Opportunity For NOUE; dated June 26, 2003

CPAL0102473; Meteorological Tower Lightning Strike; dated July 21, 2001

CPAL0201714; Assembly Area Roll-Call Missed Over 45 Percent Names; dated May 1, 2002

CPAL0201764; Some Site Contractors Were Uncertain On What To Do When the Site Emergency Sirens Activate; dated April 30, 2002

RCE 000319; Received EK-1129 Service Water Bay Low Alarm

40A1 Performance Indicator Verification

Alert and Notification System Reliability (ANS)

Palisades Plant Public Warning System Status Reports; dated April 2002 through March 2003

Palisades Public Warning System recorded Siren/PA Activation Reports; dated April 2002 through March 2003

Palisades Public Warning System Activity Reports; dated April 2002 through March 2003

Drill and Exercise Performance (DEP)

EI-3; Palisades Event Notification Forms; dated April 2002 through March 2003

Emergency Preparedness Regulatory Assessment Performance Indicator Guidelines; Revision 10

Memorandum; NRC Indicator Drill/Exercise Performance (EP-01); dated February 12, 2003

Performance Indicator Form, Attachment 1; Emergency Preparedness Performance Indicator; dated January 9, 2003

Performance Indicator Form, Attachment 1; PI Evaluation Worksheets; dated April 2002 through March 2003

CAP 033243; EP-1 Missed Opportunity During LOR Assessed Performance Exams; February 3, 2003

CAP 033360; Declared Emergency Classification Different Than Scenario; dated February 10, 2003

Emergency Response Organization (ERO) Participation

Documentation for Performance Indicator EP-2 Emergency Response Organization Drill Participation; dated April 2002 through March 2003

Matrix List by Employee for Emergency Response Organization; dated April 2002 through March 2003.

LIST OF ACRONYMS USED

ACE	Apparent Cause Evaluation
ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Process
CFR	Code of Federal Regulations
CY	Calendar Year
DEP	Drill and Exercise Performance
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EP	Emergency Preparedness
ERO	Emergency Response Organization
EDY	Effective Degradation Years
ICM	Interim Compensatory Measures
IMC	Inspection Manual Chapter
ISI	Inservice Inspection
JPM	Job Performance Measure
LER	Licensee Event Report
NCV	Non-Cited Violation
NMC	Nuclear Management Company
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
PI	Performance Indicator
PT	Penetrant Test
PWR	Pressurized Water Reactor
RCE	Root Cause Evaluation
RPV	Reactor Pressure Vessel
SDP	Significance Determination Process
SRO	Senior Reactor Operator
TI	Temporary Instruction
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic
VHP	Vessel Head Penetration
VT	Visual Testing