April 18, 2002

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

SUBJECT: PALISADES NUCLEAR GENERATING PLANT
NRC INSPECTION REPORT 50-255/02-02(DRP)

Dear Mr. Cooper:

On March 31, 2002, the NRC completed an inspection at your Palisades Nuclear Generating Plant. The enclosed report documents the inspection findings which were discussed on April 11, 2002, with members of your staff.

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

Based on the results of this inspection, we identified three issues of very low safety significance (Green) that were determined to involve violations of NRC requirements. However, because of the very low safety significance and because the issues were entered into your corrective action program, the NRC is treating these issues as Non-Cited Violations in accordance with Section VI.A.1 of the NRC' s Enforcement Policy. If you deny these Non-Cited Violations, you should provide a response with a basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector Office at the Palisades facility.

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Sincerely,

***/RA/***

Anton Vegel, Chief
Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 50-255/02-02(DRP)

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REGION III

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| Docket No: | 50-255 |
| License No: | DPR-20 |
| Report No: | 50-255/02-02(DRP) |
| Licensee: | Nuclear Management Company, LLC |
| Facility: | Palisades Nuclear Generating Plant |
| Location: | 27780 Blue Star Memorial Highway<br>Covert, MI 49043-9530 |
| Dates: | February 10 through March 31, 2002 |
| Inspectors: | J. Lennartz, Senior Resident Inspector<br>R. Krsek, Resident Inspector<br>H. Peterson, Senior Operations Engineer (Lead Inspector)<br>M. Morris, License Examiner<br>H. Walker, Reactor Engineer |
| Approved by: | Anton Vegel, Chief<br>Branch 6<br>Division of Reactor Projects |

SUMMARY OF FINDINGS

IR 05000255/02-02 on 02/10/2002 - 03/31/2002, Nuclear Management Company, LLC, Palisades Nuclear Generating Plant. Maintenance Rule, Identification and Resolution of Problems, and Event Follow-up.

This report covers a 6-week routine inspection, and a baseline licensed operator requalification inspection. The inspections were conducted by resident and specialist inspectors.

A. Inspector Identified Findings

**Cornerstone: Mitigating Systems**

- Green. The inspectors identified one Green finding that is being treated as a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions." Licensee personnel failed to promptly identify and correct repetitive failures of high pressure air system Check Valve CK-CA476, which had been occurring since the 1996 time frame. In addition, the most recent failure which occurred in April 2001, was a condition adverse to quality for which no apparent or root cause had been performed in accordance with the licensee's corrective action program.

  This inspector identified finding was determined to be of very low safety significance (Green) by the significance determination process, because: (1) the finding was not a design or qualification deficiency; (2) the finding did not represent an actual loss of safety function based on as-found check valve leakage; (3) the finding did not represent an actual loss of a safety function of a single train for greater than Technical Specification outage time; (4) the finding did not represent an actual loss of a safety function of one or more Non-Technical Specification trains of equipment; (5) the finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event; and (6) while the finding could potentially be a design or qualification deficiency, the licensee's operability determinations confirmed that the check valve leakage did not result in a loss of function per Generic Letter 91-18, Revision 1. (Section 1R12.1)

- Green. The inspectors identified one Green finding that is being treated as a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions." Licensee personnel failed to identify during an apparent cause evaluation completed on February 4, 2002, for Condition Report CPAL0200059, "Fire Pump P-9A Tripped After Running For Approximately Three Minutes," that inadequate post maintenance testing activities were specified in a work order following electrical breaker maintenance for Fire Pump P-9A. Because the licensee's apparent cause failed to identify the inadequate post maintenance testing, there were no corrective actions developed to ensure that appropriate post maintenance testing would be specified on subsequent work orders for electrical breaker maintenance similar to that conducted on Fire Pump P-9A.

This inspector identified finding was determined to be of very low safety significance (Green) by the significance determination process, because: (1) the finding was not a design or qualification deficiency; (2) the finding did not represent an actual loss of safety function in that two other fire pumps were always available; (3) fire protection pumps are not in the Technical Specifications, and therefore the finding did not represent an actual loss of a safety function of a single train for greater than Technical Specification outage time; (4) the finding did not represent an actual loss of a safety function of one or more Non-Technical Specification trains of equipment in that two other fire pumps were always available; (5) the finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event in that the finding did not involve the loss of degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather initiating event; and (6) the finding did not involve the loss of a safety function that contributed to external event initiated core damage accident sequences from fires in that two fire pumps were always available. (Section 4OA2)

- Green. The inspectors identified a Green finding that is being treated as a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that the measures for verifying and checking the adequacy of the design for Specification Change SC-94-130 assured that the applicable regulatory requirements and the design basis of the containment sump check valves were met.

  This inspector identified finding was determined to be of very low safety significance (Green) by the significance determination process, because the finding was a design deficiency confirmed not to result in a loss of function per NRC Generic Letter 91-18, Revision 1. The licensee's past operability analysis credited the use of containment overpressure and calculated plant parameters following a design basis accident and concluded that the available net positive suction head was above that required for all engineered safeguards system pumps considering the most limiting design basis accident conditions. Therefore, the engineered safeguards system pumps would have been able to perform the intended safety function and were operable, but nonconforming in accordance with Generic Letter 91-18, Revision 1. (Section 4OA3.1)

B. Licensee Identified Findings

None.

## Report Details

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

### Summary of Plant Status

The plant was essentially at full power for the duration of the inspection period. Power was reduced and maintained at 99.5 percent to address issues with a relief valve on the balance of plant system (non-nuclear safety related system).

## 1. REACTOR SAFETY

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity**

### 1R04 Equipment Alignment (71111.04)

#### .1 Quarterly Equipment Alignment Walkdowns

a. Inspection Scope

The inspectors performed partial walkdowns of the East Safeguards High Pressure Air System, and the High Pressure Safety Injection Pump P-66B. The inspectors performed the walkdowns to verify proper system lineup while redundant plant equipment was out of service. The inspectors verified that power was available, that accessible equipment and components were appropriately aligned, and that no discrepancies existed which would impact the systems' function. Portions of the system alignment inspection included discussions and system walkdowns with operations and engineering personnel.

The inspectors also reviewed selected condition reports that had been entered into the licensee's corrective action program to verify that the corrective actions were reasonable and had been implemented as scheduled.

b. Findings

No findings of significance were identified.

### 1R05 Fire Protection (71111.05Q)

#### .1 Area Walkdowns

a. Inspection Scope

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

- Control Room Complex (Fire Area 1); and
- Auxiliary Building 590-Foot Level Corridor (Fire Area 13).

The inspectors assessed the material condition of the passive fire protection features and verified that transient combustibles and ignition sources were appropriately controlled. Also, the inspectors reviewed documentation for randomly selected completed surveillances to verify the availability of the sprinkler fire suppression system, smoke detection system, and manual fire fighting equipment for these areas. The inspectors also verified that the fire protection equipment that was installed and available in the fire areas corresponded with the equipment which was referenced in the applicable portions of the Final Safety Analysis Report, Section 9.6, "Fire Protection."

b. Findings

No findings of significance were identified.

.2 (Closed) Temporary Instruction (TI) 2515/146: Hydrogen Storage Locations

a. Inspection Scope

The inspectors completed the inspection requirements of the TI to confirm that distances between any hydrogen storage capacity and ventilation intakes or risk significant tanks, systems, structures, or components were greater than 50 feet. The inspectors reviewed documents to verify that minor issues identified during the inspection were entered into the licensee's corrective action system.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

.1 Facility Operating History

a. Inspection Scope

The inspectors reviewed the plant's operating history from January 2001 through January 2002, to assess whether the Licensed Operator Requalification Training (LORT) program had addressed operator performance deficiencies noted at the plant.

b. Findings

No findings of significance were identified.

.2 Licensee Requalification Examinations

a. Inspection Scope

The inspectors performed a biennial inspection of the licensee's LORT program. The inspectors reviewed the annual requalification operating and written examination material to evaluate general quality, construction, and difficulty level. The operating portion of the examination was inspected during February 25 - March 1, 2002. The operating

examination material consisted of two dynamic simulator scenarios and five job performance measures (JPMs). No written examination was administered during this annual requalification examination. However, the 2001 biennial written examination material and overall results were reviewed. The biennial written examination consisted of 30 open reference multiple choice questions. The inspectors reviewed the methodology for developing the examinations, including the LORT program two year sample plan, probabilistic risk assessment insights, previously identified operator performance deficiencies, and plant modifications. The inspectors assessed the level of examination material duplication during the current year annual examinations and with last year's annual examinations. The inspectors also interviewed members of the licensee's management, operations, and training staff and discussed various aspects of the examination development.

b. Findings

No findings of significance were identified.

.3 Licensee Administration of Requalification Examinations

a. Inspection Scope

The inspectors observed the administration of the requalification operating test to assess the licensee's effectiveness in conducting the test and to assess the facility evaluators' ability to determine adequate performance using objective, measurable performance standards. The inspectors evaluated the performance of one staff crew and one operating shift crew during two dynamic simulator scenarios in parallel with the facility evaluators. In addition, the inspectors observed licensee evaluators administering five JPMs on a select number of operators. The inspectors observed the training staff personnel administering the operating test, including pre-examination briefings, observations of operator performance, individual and crew evaluations after dynamic scenarios, and techniques for JPM cuing. The final evaluation briefing for licensed operators was scheduled for the following week and was not observed. The inspectors noted the performance of the simulator to support the examinations. The inspectors also reviewed the licensee's overall examination security program.

b. Findings

No findings of significance were identified.

.4 Licensee Training Feedback System

a. Inspection Scope

The inspectors assessed the methods and effectiveness of the licensee's processes for revising and maintaining its LORT program up to date, including the use of feedback from plant events and industry experience information. The inspectors interviewed licensee personnel (operators, instructors, training management, and operations management) and reviewed the applicable licensee's procedures. In addition, the inspectors reviewed the licensee's quality assurance/quality control oversight activities,

including licensee's training and operations department self-assessment reports, to evaluate the licensee's ability to assess the effectiveness of its LORT program and to implement appropriate corrective actions.

b. Findings

No findings of significance were identified.

.5 Licensee Remedial Training Program

a. Inspection Scope

The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the previous annual requalification examinations and the training planned for the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans, and interviewed licensee personnel (operators, instructors, and training management). In addition, the inspectors reviewed the licensee's current examination cycle remediation packages for unsatisfactory operator performance on the written examination and operating test to ensure that remediation and subsequent re-evaluations were completed prior to returning individuals to licensed duties.

b. Findings

No findings of significance were identified.

.6 Conformance with Operator License Conditions

a. Inspection Scope

The inspectors evaluated the facility and individual operator licensees' conformance with the requirements of 10 CFR Part 55. The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53(e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators and which control room positions were granted credit for maintaining active operator licenses. The inspectors also reviewed six licensed operators' medical records maintained by the facility for ensuring the medical fitness of its licensed operators and to assess compliance with medical standards delineated in ANSI/ANS-3.4 and with 10 CFR 55.21 and 10 CFR 55.25. In addition, the inspectors reviewed the licensee's LORT program to assess compliance with the requalification program requirements as described by 10 CFR 55.59(c).

b. Findings

No findings of significance were identified.

.7 Quarterly Resident Inspector Licensed Operator Performance Observations

a. Inspection Scope (71111.11Q)

The inspectors observed licensed operator performance during annual requalification examinations on in-plant job performance measures to assess the operators ability to complete required actions in off-normal and emergency operating procedures. The inspectors also reviewed the completed operator evaluations to assess the licensee evaluator's ability to identify and assess operator performance deficiencies.

In addition the inspectors reviewed condition reports to verify that identified problems associated with licensed operator requalification training activities were appropriately characterized.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12Q)

.1 Inadequate Corrective Actions for Repetitive Failures of a High Pressure Air System Check Valve

a. Inspection Scope

The inspectors reviewed the licensee's Maintenance Rule Scoping Document for the High Pressure Air System, which was designated as having high safety significance.

The inspectors reviewed the licensee's maintenance rule performance indicators associated with the system's maintenance rule category status. In addition, the inspectors discussed various technical issues with the applicable system engineer.

Further, the inspectors reviewed selected condition reports to verify that the identified issues were appropriately characterized and were dispositioned in accordance with the licensee's Maintenance Rule program. The inspectors reviewed selected condition reports to verify that designated corrective actions were reasonable and had been implemented as scheduled.

b. Findings

The inspectors identified a Green finding that is being treated as a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure to promptly identify and correct conditions adverse to quality regarding repetitive failures of High Pressure Air System Check Valve CK-CA476.

Check Valve CK-CA476, a "Q" safety system component, was located in a high pressure air line used to cross-connect the nonsafety-related turbine building high pressure air system with the safety-related high pressure air system in the East and West Engineered Safeguards Rooms. The safety function of Valve CK-CA476 was to close in the event

that the Turbine Building high pressure air system failed while cross-connected to the safety-related air system. The closed check valve would prevent air leakage to the failed Turbine Building system.

The Turbine Building high pressure air system was normally isolated from the safety-related high pressure air system in the East and West Engineered Safeguards Rooms with locked closed manual valves. The safety- and nonsafety-related portions of the high pressure air system were only cross-connected for short periods of time when the associated East or West Safeguards air compressors were taken out of service for maintenance.

The inspectors reviewed the corrective actions associated with Condition Report CPAL0101229, "Check Valve CK-CA476 Soft Seat (O-Ring) Disengaged from Plug, and Piston Bore Found Unsatisfactorily." The inspectors noted that the significance level assigned to this condition report was a Level 4, which only required trending and if necessary, remedial action, with no apparent or root cause required.

The inspectors reviewed work order and condition report histories for this valve which revealed the following failure history associated with Check Valve CK-CA476:

- In December 1996, Condition Report CPAL9601793 was initiated and documented that Check Valve CK-CA476 failed the test acceptance criteria;

- In May 1998, Condition Report CPAL9800785 was initiated and documented that Check Valve CK-CA476 failed the test acceptance criteria;

- In October 1999, Condition Report CPAL9902216 was initiated and documented that Check Valve CK-CA476 failed the test acceptance criteria;

- In November 1999, Condition Report CPAL9902778 was initiated and documented that when the Turbine Building and East Engineered Safeguards High Pressure Air Systems were cross-connected Check Valve CK-CA476 exhibited leakby; and

- In April 2001, Condition Report CPAL0101229 was initiated and documented that the soft seat O-Ring of Check Valve CK-CA476 was found on the valve stem vice the soft seat thread.

The inspectors noted that while the valve failed the test acceptance criteria, the licensee's operability determinations documented that the exhibited as-found leakage had not yet affected the overall operability of the high pressure air system. However, the inspectors noted that in the last condition report (CPAL0101229), neither an apparent nor root cause was performed to determine the nature of the repetitive failures. Without an apparent or root cause, the inspectors also could not determine if the active Engineering Assistance Requests would correct the repetitive nature of the check valve failures. The inspectors noted that all condition reports associated with Check Valve CK-CA476 were closed out in the corrective action system as 100-percent complete.

The inspectors determined that the failure to promptly identify and correct conditions adverse to quality regarding the repetitive failures of High Pressure Air System Check Valve CK-CA476 and had a credible impact on safety and was more than a minor concern. The inspectors determined that the failures could credibly affect the availability, reliability or function of a mitigating system, during periods of time when the engineered safeguards high pressure air system was cross-connected to the turbine building high pressure air system. The East and West Safeguards High Pressure Air Systems provide the safety-related motive force for the opening and closing of safety-related valves in the respective trains of the Emergency Core Cooling System.

The inspectors used Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The inspectors determined that:

- The finding did not represent an actual loss of safety function based on as-found check valve leakage;

- The finding did not represent an actual loss of a safety function of a single train for greater than Technical Specification outage time;

- The finding did not represent an actual loss of a safety function of one or more Non-Technical Specification trains of equipment;

- The finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event; and

- While the finding could potentially be a design or qualification deficiency, the licensee's operability determinations confirmed that the check valve leakage did not result in a loss of function per Generic Letter 91-18, Revision 1.

Therefore, the finding screened as Green and was of very low safety significance.

10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," requires, in part, that conditions adverse to quality be promptly identified and corrected. Contrary to this, licensee personnel failed to promptly identify and correct the repetitive failures of the high pressure air system Check Valve CK-CA476. This violation is associated with an NRC identified finding that is characterized by the significance determination process as having very low risk significance (Green) and is being treated as a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 50-255/02-02-01)

This finding is in the licensee's corrective action program as Condition Report CPAL0201343.

.2 Maintenance Rule Evaluations

a. Inspection Scope

The inspectors reviewed the licensee's Maintenance Rule Scoping Document for the following plant equipment designated as having high safety significance:

- Control Rod Drive System; and
- 2400-Volt AC Power System.

The inspectors reviewed the licensee's maintenance rule performance indicators associated with the system's maintenance rule category status. In addition, the inspectors discussed various technical issues with the applicable system engineer.

Further, the inspectors reviewed selected condition reports to verify that the identified issues were appropriately characterized and were dispositioned in accordance with the licensee's Maintenance Rule program. The inspectors reviewed selected condition reports to verify that designated corrective actions were reasonable and had been implemented as scheduled.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- Emergent failure of Component Cooling Water Pump P-52C Motor; and
- Planned maintenance on High Pressure Safety Injection Pump P-66A.

The inspectors discussed the shutdown operation equipment checklists and plant configuration control for the maintenance activities with operations, maintenance and work control center staff to verify that necessary steps were taken to control the work activities.

In addition, the inspectors reviewed select condition reports to verify that identified problems regarding maintenance risk assessments and control of emergent work activities were appropriately characterized and entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15Q)

a. Inspection Scope

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

- Component Cooling Water System Debris; and
- Past Operability for the Containment Sump Recirculation Check Valves CK-ES3181 and CK-ES3166.

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

Further, the inspectors reviewed select condition reports to verify that identified problems associated with the operability evaluations were appropriately characterized and entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed the engineering analyses, modification documents and design change information associated with the following permanent modification to the Component Cooling Water System Technical Specification Bases:

- Technical Specification Bases Change for Technical Specification 3.7.7 which removed Component Cooling Water Pump P-52C from the Bases.

The inspectors discussed the modifications with the responsible engineers, licensing and operations staff. In addition, the inspectors reviewed the applicable sections of the Technical Specifications and Updated Final Safety Analysis Report to verify that the modifications would not adversely impact the system's safety functions.

Further, the inspectors reviewed condition reports to verify that identified problems associated with the modifications were appropriately characterized and entered into the licensee's corrective action program

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19Q)

a. Inspection Scope

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

- High Pressure Safety Injection Pump P-66A; and
- Control Room Heating and Ventilation System, Train A.

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

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

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

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed portions of the following surveillance testing activities conducted on risk-significant plant equipment to verify that testing was conducted in accordance with prescribed procedures:

- Battery Charger No. 1;
- Emergency Diesel Generator 1-2;
- Safety Injection System Logic;
- Reactor Protection System Trip Units; and
- Component Cooling Water Flow Verification Test to the Emergency Core Cooling System.

The inspectors also reviewed the documented test data for the Technical Specification Surveillance Test procedures and the associated basis documents to verify that testing acceptance criteria were satisfied.

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

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

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

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

- TM 2001-014, "Due to damaged detectors, change locations of cabling at the reactor head for the incore detectors to provide the required 16 totally qualified detector installations. Also make corresponding changes to the addresses to provide proper signals to the PPC."

The licensee installed this temporary modification to relocate environmentally qualified cables to undamaged connections on the reactor vessel head.

In addition, the inspectors reviewed condition reports concerning this temporary modification to verify that identified problems were appropriately characterized and evaluated.

b. Findings

No findings of significance were identified.

## 4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors verified that the data submitted by the licensee was accurate and complete for the safety system functional failure performance indicator. The inspectors

reviewed control room logs, licensee monthly operating reports, licensee's Incident Analysis System logs, completed Technical Specification Surveillance Tests, and the licensee's maintenance work order database for January through December 2001, to verify that the licensee had accurately reported the performance indicator for these quarters.

In addition, the inspectors discussed the data with the licensee staff responsible for gathering and reporting the information related to this performance indicator. Further, the inspectors reviewed condition reports regarding performance indicator data to verify that identified problems were appropriately characterized.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Inadequate Corrective Actions for Post Maintenance Testing Activities

a. Inspection Scope

The inspectors reviewed the apparent cause evaluation for Condition Report CPAL0200059, "Fire Pump P-9A Tripped After Running For Approximately Three Minutes," that was completed by licensee personnel on February 4, 2002. The apparent cause evaluation was selected for review because the Fire Protection System was designated as a high safety-significant system within the Palisades Systems Maintenance Rule Safety-Rankings. The inspectors reviewed the evaluation to determine if the identified causes for Fire Pump P-9A to trip after running for only three minutes were appropriate and to determine if the resultant corrective actions were reasonable.

b. Findings

The inspectors identified a Green finding that is being treated as a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure to promptly identify and correct conditions adverse to quality regarding post maintenance testing activities on Fire Pump P-9A.

Licensee personnel generated Condition Report CPAL0200059, "Fire Pump P-9A Tripped After Running For Approximately Three Minutes," and entered the problem into the corrective action program. The events and circumstances pertaining to Fire Pump P-9A tripping after running for only 3 minutes were previously documented in Inspection Report 50-255/01-17(DRP), Section 1R19.

The apparent cause evaluation that licensee personnel completed for CPAL0200059 concluded that Fire Pump P-9A tripped after running for only 3 minutes because the long time trip relays on the associated electrical supply breaker were set improperly due to a lack of clarity on the retest record. Licensee personnel also concluded that maintenance

technicians did not validate assumptions made during the maintenance activity and that the pre-job brief was ineffective.

The inspectors noted that the corrective actions appeared reasonable for the apparent causes that were identified by licensee personnel in their evaluation. However, the inspectors determined that the licensee failed to identify an apparent cause of inadequate post maintenance testing designated on the work order (WO2411415) that was utilized to set the long time overcurrent trips on the breaker.

The work order specified that post maintenance testing to be completed per Permanent Maintenance Procedure SPS-E-17, "Temporary Installation and Removal of Spare Circuit Breakers." However, Procedure SPS-E-17 contained no post maintenance testing instructions. Instead, the work order should have specified post maintenance testing to be done in accordance with Administrative Procedure 5.19, Attachment 2, "Guidelines for Post Maintenance Testing Electrical Maintenance."

The inspectors determined that the failure of licensee personnel to identify in their apparent cause evaluation that inadequate post maintenance testing activities were designated on WO2411415 was more than minor and had a credible impact on safety. Because the licensee's apparent cause failed to identify the inadequate post maintenance testing, there were no corrective actions developed to ensure that appropriate post maintenance testing activities would be specified on subsequent work orders for electrical breaker maintenance similar to that conducted on Fire Pump P-9A.

The inspectors used Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and concluded that this finding was of very low safety significance. The inspectors determined that the issue affected the mitigating system cornerstone in that the Fire Protection System was a backup for the Auxiliary Feedwater System. The inspectors determined that:

- The finding was not a design or qualification deficiency;
- The finding did not represent an actual loss of safety function in that two other fire pumps were always available;
- Fire protection pumps are not in the Technical Specifications, and therefore the finding did not represent an actual loss of a safety function of a single train for greater than Technical Specification outage time;
- The finding did not represent an actual loss of a safety function of one or more Non-Technical Specification trains of equipment in that two other fire pumps were always available;
- The finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event in that the finding did not involve the loss of degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather initiating event; and

- The finding did not involve the loss of a safety function that contributed to external event initiated core damage accident sequences from fires in that two fire pumps were always available.

Therefore, the finding screened as Green and was of very low safety significance.

10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," requires, in part, that conditions adverse to quality be promptly identified and corrected. Contrary to this, licensee personnel failed to identify during an apparent cause evaluation completed on February 4, 2002, for Condition Report CPAL0200059, "Fire Pump P-9A Tripped After Running For Approximately Three Minutes," that inadequate post maintenance testing activities were specified in WO2411415 following electrical breaker maintenance for Fire Pump P-9A. Because the licensee's apparent cause failed to identify the inadequate post maintenance testing, there were no corrective actions developed to ensure that appropriate post maintenance testing activities would be specified on subsequent work orders for electrical breaker maintenance similar to that conducted on Fire Pump P-9A. This violation is associated with an NRC identified finding that is characterized by the significance determination process as having very low risk significance (Green) and is being treated as a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 50-255/02-02-02)

This finding is in the licensee's corrective action program as Condition Report CPAL0200622.

4OA3 Event Follow-up (71153)

.1 (Closed) Unresolved Item 50-255/01-14-01, Licensee Event Report 01-005-00 and Associated Licensee Event Report Retraction: Containment Sump Check Valves/ Reduced Available Net Positive Suction Head.

The inspectors identified a Green finding that is being treated as a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that the measures for verifying and checking the adequacy of the design for Specification Change SC-94-130 assured that the applicable regulatory requirements and the design basis of the containment sump check valves were met.

The licensee made Event Notification 38477 and Licensee Event Report 01-005-00 based on the preliminary analyses of test data for the Containment Sump Check Valves CK-ES3166 and CK-ES3181. The mock-up testing of a full scale containment sump check valve was conducted to address the licensee's questioning of the ability of the containment sump check valves to go full open for the design basis accident, following a Recirculation Actuation Signal.

The testing performed discovered that the head loss through the containment sump check valves was greater than previously assumed; therefore, the increased head loss would have resulted in less than required available net positive suction head (NPSH) for the engineered safeguards system pumps during recirculation mode following a postulated loss of coolant accident. The licensee's design basis accident analyses had previously assumed the containment sump recirculation check valves would have fully

open (resulting in minimal head loss through the containment sump check valves) during recirculation mode following a design basis accident, based on original vendor documentation supplied for the check valves.

The testing performed was a result of a corrective action to address an issue identified in Condition Report CPAL0100764, "Performance of Containment Sump Check Valves During Post-Design Basis Accident Recirculation Mode May Not Be Acceptable." However, the licensee's evaluation of the circumstances surrounding this issue revealed that concerns were raised regarding the potential for higher than assumed head loss values through the containment sump check valves as early as 1996.

Licensee personnel's subsequent evaluation of past operability of the engineered safeguards system pumps concluded that the pumps were operable, but nonconforming in accordance with NRC Generic Letter 91-18, Revision 1. Licensee personnel reached this conclusion through engineering analysis and evaluations which credited containment pressure and calculated plant parameters following postulated design basis accident scenarios. The credit of containment overpressure increased the available NPSH to greater than the required NPSH for the engineered safeguards system pumps considering the most limiting postulated post-accident conditions and scenarios.

As follow-up to the circumstances surrounding this issue, the inspectors reviewed the past history of the containment sump check valves as well as the results of the testing of the containment sump check valve mock-up performed in October 2001. The inspectors also reviewed design modifications made to the containment sump check valves since original plant installation. The inspectors noted that Specification Change SC-94-130 was implemented in 1995 and added an external lever arm and stuffing box assembly to Check Valves CK-ES3166 and CK-ES3181 to allow the valves to be stroke tested per Section XI of the American Society of Mechanical Engineers (ASME) Code. The inspectors noted this design change did not consider the potential effects on the operation of the check valve with the addition of the external lever arm and stuffing box assembly.

The licensee's mock-up test performed in October 2001 demonstrated that the operation of the check valve was significantly affected due to the addition of the stuffing box assembly and associated valve packing in 1995. The increased head loss through the containment sump check valves as a result of the 1995 design modification would have resulted in less than required available NPSH for the high pressure safety injection and the containment spray pumps during recirculation mode following a postulated design basis accident.

Therefore, the inspectors concluded that the licensee's failure to ensure that measures for verifying and checking the adequacy of the design for Specification Change SC-94-130 to assure that the applicable regulatory requirements and the design basis of the containment sump check valves were met was a violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," and was more than minor. Specifically, the failure to meet the applicable regulatory requirements and the design basis of the containment sump check valves could have credibly affected the operability, reliability or function of the high pressure safety injection and containment spray mitigating systems.

The inspectors used Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and concluded that this finding was of very low safety significance. The inspectors determined that the finding was a design deficiency confirmed not to result in a loss of function per NRC Generic Letter 91-18, Revision 1. The licensee's past operability analysis credited the use of containment overpressure and calculated plant parameters following a design basis accident and concluded that the available NPSH was above that required for all pumps considering the most limiting postulated conditions. Therefore, the engineered safeguards system pumps would have been able to perform the intended safety function and were operable, but nonconforming in accordance with Generic Letter 91-18, Revision 1.

The inspectors reviewed the licensee's engineering analysis and evaluations for past operability to verify the adequacy of crediting containment overpressure and calculated plant parameters for this issue. In addition, the inspectors reviewed the licensee's engineering analysis with NRC Regional personnel and the Office of Nuclear Reactor Regulation technical staff to verify the licensee's utilization of containment overpressure and calculated plant parameters was appropriate. The inspectors concluded the licensee's use of containment overpressure and calculated plant parameters was appropriate.

Therefore, the finding screened as Green and was of very low safety significance.

10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, measures shall provide for verifying and checking the adequacy of the design. Contrary to this, the licensee personnel failed to ensure that the measures for verifying and checking the adequacy of the design for Specification Change SC-94-130 assured that the applicable regulatory requirements and the design basis of the containment sump check valves were met. This violation is associated with an NRC identified finding that is characterized by the significance determination process as having very low risk significance (Green) and is being treated as a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 50-255/02-02-03)

This finding is in the licensee's corrective action program as Condition Reports CPAL0100764, and CPAL0103563.

The licensee completed corrective actions to address this condition prior to the startup of the plant from an extended outage in January 2002. The licensee modified plant equipment and procedures without further reliance on crediting containment overpressure, to ensure the Design Basis and Design Function of the Engineered Safeguards System were met in accordance with the facility's license.

.2 (Closed) Escalated Enforcement Item 50-255/01-06-01: On June 27, 2001, the NRC issued a Notice of Violation and Imposed a Civil Penalty for the violation of 10 CFR 50.9, completeness and accuracy of information. The NRC issued the violation for the failure to provide complete and accurate information regarding the licensee's submittals for a Notice of Enforcement Discretion and exigent Technical Specification Change Request which the NRC granted in February 2000 to remove an underground (backup) steam supply to Auxiliary Feedwater Pump P-8B.

The inspectors reviewed the licensee's root cause and corrective actions for this violation to verify the following: 1) the root cause for this finding was identified; 2) the proposed corrective actions addressed the root cause and scope of problems identified by the licensee during the review of this issue; and 3) corrective actions were implemented as scheduled. The inspectors identified that the actions taken and planned by the licensee addressed the root cause and causal factors of this issue.

In addition, the inspectors reviewed a random sample of seven licensee submittals made to the NRC from May 2001 through March 2002, and the inspectors verified that the licensee's corrective actions addressed the issue of completeness and accuracy of licensee submittals to the NRC. The inspectors have no further concerns on this issue and considered this inspection follow-up item closed.

.3 (Closed) Inspection Follow-up Item 50-255/97201-22: Potential non-conservative compliance with Technical Specification Section 4.7.2c. During NRC Inspection 50-255/97201, the licensee performed an operability determination which concluded that the 4-hour station blackout battery load profile enveloped the 2-hour Design Basis Accident load profile. Licensee personnel completed a formal analysis of battery loading which considered the battery chargers in an alternate alignment, a combined event of LOCA/LOOP, and a single failure of AC power.

The inspectors reviewed the completed corrective actions for Condition Reports CPAL9701537, CPAL9701538, and CPAL9701582, as well as Action Item Record A-PAL-98-037, which documented the issue and the inspection follow-up item. Engineering Analyses EA-ELEC-LDTAR-009 and EA-ELEC-VOLT-026, which also addressed and evaluated the issue, were also reviewed. Completed documentation for two station battery surveillance tests, Surveillance Procedure FE-5A, Revision 9 and Surveillance Procedure RE-83A, Revision 12, were reviewed to verify that the actions taken by the licensee were effective. The inspectors have no further concerns on this issue and considered this inspection follow-up item closed.

.4 (Closed) Licensee Event Report Supplement 01-004-01: The inspectors reviewed the licensee's supplement to Licensee Event Report 01-004-01, "Control Rod Drive Mechanism Upper Housing Assembly Crack Indications," dated March 14, 2002. The inspectors noted the supplemental report identified two additional licensee commitments and the inspectors did not identify any concerns with the accuracy or commitments contained in the submittal. The closure of the initial Licensee Event Report was documented in NRC Inspection Report 50-255/01-15 and supplemental response 01-004-01 is considered closed.

4OA4 Cross-Cutting Issues

Corrective Actions

While no new cross-cutting findings were identified during this inspection period, the inspectors identified examples of the continuing nature of the corrective action cross-cutting issue Finding FIN 50-255/01-17-05 documented in NRC Inspection Report 50-255/01-17, regarding the implementation of the licensee's corrective action program.

In Sections 1R12.1 and 4OA2.1 of this report two Green findings (50-255/02-02-01 and 50-255/02-02-01) are documented for the failure to promptly identify and correct conditions adverse to quality which affected the Mitigating Systems Cornerstone.

In addition, NRC Inspection Report 50-255/01-15, issued March 4, 2002, documented a Green finding (50-255-01-15-02) for the failure to take corrective actions to prevent recurrence for a significant condition adverse to quality which affected the Barrier Integrity Cornerstone.

4OA6 Meeting

Exit Meetings

The inspectors presented the inspection results to Mr. Cooper and other members of licensee management on April 11, 2002, after the inspection period ended. Licensee staff acknowledged the findings presented. No proprietary information was identified at the exit meeting.

Exit Meeting

| | |
|---|---|
| Senior Official at Exit: | Douglas E. Cooper, Site Vice President |
| Date: | March 01, 2002 |
| Proprietary (explain “yes”) | No |
| Subject: | Results of an Inspection of the Licensee’s Licensed Operator Requalification Program |
| Change to Inspection Findings: | No |

KEY POINTS OF CONTACT

Licensee

B. Benson, Unit Supervisor
T. Brown, Manager, Chemical and Radiological Services
D. Cooper, Site Vice President
D. Crabtree, Systems Engineering Manager
B. Dotson, Licensing Analyst
J. J. Fletcher, Security Manager
P. Harden, Director, Engineering
G.W. Hettel, Manager, Maintenance and Construction
L. Lahti, Licensing Manager
D. G. Malone, Supervisor, Regulatory Assurance
D. J. Malone, General Plant Manager
G. Packard, Operations Superintendent
K. Smith, Operations Manager

Licensee

G. Baustian, Operations Training Supervisor
R. Bender, Operations Requal Training Supervisor
L. Bogue, Director, Training
D. Cooper, Site Vice President
B. Dotson, Licensing Analyst
D. G. Malone, Regulatory Compliance Supervisor
P. Harden, Director, Engineering
N. Haskell, Nuclear Oversight Manager
L. Lahti, Licensing Manager
M. Lake, Nuclear Control Operator
C. Main, Shift Engineer/ STA
D. Malone, Plant General Manager
K. Marbaugh, Nuclear Oversight
M. Menarick, Operations Training Coordinator
G. Packard, Operations Superintendent
P. Russell, Performance Improvement Manager
W. Townes, Nuclear Control Operator
J. Wicks, Shift Supervisor

NRC

J. Lennartz, Senior Resident Inspector, Palisades

NRC

D. Hood, Project Manager, NRR

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

| | | |
|---|---|---|
| 50-255/02-02-01 | NCV | Green. 10 CFR 50, Appendix B, Criterion XVI. Licensee personnel failed to promptly identify and correct the repetitive failures of the high pressure air system Check Valve CK-CA476, which had been occurring since the 1996 time frame. |
| 50-255/02-02-02 | NCV | Green. 10 CFR 50, Appendix B, Criterion XVI. Licensee personnel failed to identify during an apparent cause evaluation that inadequate post maintenance testing activities were designated for Fire Pump P-9A following electrical breaker maintenance. Consequently, no corrective actions were developed to correct the condition adverse to quality. |
| 50-255/02-02-03 | NCV | Green. 10 CFR 50, Appendix B, Criterion III, "Design Control." Licensee failed to assure that measures for checking the adequacy of a design modification made to the containment sump recirculation check valves in 1995 ensured the overall design function of the valves was not affected. |
| 50-255/01-004-01 | LER | Supplemental Response to Licensee Event Report (LER) 01-004-01, "Control Rod Drive Mechanism Upper Housing Assembly Crack Indications |
| 50-255/01-005-00 | LER | Containment Sump Check Valves/Reduced Available Net Positive Suction Head and Associated Licensee Event Report Cancellation |

Closed

| | | |
|---|---|---|
| 50-255/02-02-01 | NCV | Green. 10 CFR 50, Appendix B, Criterion XVI. Licensee personnel failed to promptly identify and correct the repetitive failures of the high pressure air system Check Valve CK-CA476, which had been occurring since the 1996 time frame. |
| 50-255/02-02-02 | NCV | Green. 10 CFR 50, Appendix B, Criterion XVI. Licensee personnel failed to identify during an apparent cause evaluation that inadequate post maintenance testing activities were designated for Fire Pump P-9A following electrical breaker maintenance. Consequently, no corrective actions were developed to correct the condition adverse to quality. |
| 50-255/02-02-03 | NCV | Green. 10 CFR 50, Appendix B, Criterion III, "Design Control." Licensee failed to assure that measures for checking the adequacy of a design modification made to the containment sump recirculation check valves in 1995 ensured the overall design function of the valves was not affected. |

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED (Cont.)

Closed (cont.)

| | | |
|---|---|---|
| 50-255/01-14-01 | URI | Unresolved item to track and assess the completed test results from full scale testing of a containment sump check valve |
| 50-255/97201-22 | IFI | Potential non-conservative compliance with Technical Specification Section 4.7.2c. |
| 50-255/01-06-01 | EEI | Severity Level III Violation of 10 CFR 50.9 and associated Civil Penalty for the failure to provide complete and accurate information |
| 50-255/01-004-01 | LER | Supplemental Response to Licensee Event Report (LER) 01-004-01, “Control Rod Drive Mechanism Upper Housing Assembly Crack Indications |
| 50-255/01-005-01 | LER | Containment Sump Check Valves/Reduced Available Net Positive Suction Head and Associated Licensee Event Report Cancellation |

## LIST OF ACRONYMS USED

| | |
|---|---|
| ANS | American National Standard |
| ASME | American Society of Mechanical Engineers |
| CFR | Code of Federal Regulations |
| CR | Condition Report |
| DRS | Division of Reactor Safety |
| FSAR | Final Safety Analysis Report |
| JPM | Job Performance Measure |
| LORT | Licensed Operator Requalification Training |
| NCV | Non-Cited Violation |
| NPSH | Net Positive Suction Head |
| NRC | Nuclear Regulatory Commission |

## LIST OF DOCUMENTS REVIEWED

1R04 Equipment Alignment

Plant Procedures

| | | |
|---|---|---|
| SOP-3 | System Operating Procedure - Safety Injection and Shutdown Cooling System | Revision 46 |

| | | |
|---|---|---|
| SOP-3 | Attachment 17, Checklist 3.8 - Engineered Safeguards System Checklist (Heatup) | Revision 46 |
| SOP-3 | Attachment 18, Checklist 3.9 - Engineered Safeguards Administrative Control Verification | Revision 46 |
| SOP-20 | System Operating Procedure - High Pressure Control Air System | Revision 19 |
| EOP Supplement - 4 | Emergency Operating Procedure - High Pressure Safety Injection and Low Pressure Safety Injection Flow Curves | Revision 5 |
| Admin. 4.02 | Administrative Procedure - Control of Equipment | Revision 18 |

Miscellaneous Documents

| | | |
|---|---|---|
| DBD-2.02 | Design Basis Document - High Pressure Safety Injection System | Revision 6 |
| | Final Safety Analysis Report, Section 6.1-Safety Injection System | Revision 22 |
| PPAC X-OPS-590 | Predetermined and Periodic Activity Control - Blowdown Low Points in High Pressure Air System, completed activities from July 2001 through February 2002 | |

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0201121 | High Pressure Air Dryer M-9A Humidity Sensor Found Isolated by NRC |
| CPAL0201086 | Valves Not Locked in Accordance with Administrative Procedure 4.02, More Than One Turn Possible |

1R05 Fire Protection

Plant Procedures

| | | |
|---|---|---|
| ONP-12 | Off-Normal Procedure - Acts Of Nature | Revision 16 |
| AP-6.02 | Administrative Procedure - Control Of Equipment | Revision 17 |
| ONP-25.1 | Off-Normal Procedure - Fire Which Threatens Safety-Related Equipment | Revision 11 |
| ONP25.2 | Off-Normal Procedure - Alternate Safe Shutdown Procedure | Revision 17 |

Miscellaneous Documents

| | | |
|---|---|---|
| EA-PSSA-00-001 | Palisades Plant Post Fire Safe Shutdown Summary Report, for Fire Areas 1, 13, and 23 | Revision 1 |
| Palisades Plant Fire Hazards Analysis | Analysis for Fire Areas 1, 13, and 23 | Revision 4 |
| NFPA 50A | National Fire Protection Association Standard 50A - Gaseous Hydrogen Systems of Consumer Sites | 1969 and 1978 Standards |
| EA-APR-98004 | Engineering Analysis - Analysis of Problems Concerning Fire Doors | June 30, 1998 |
| RP0686-0269A-PPO3 | Engineering Analysis - Generic Letter 86-10 Analysis of Fire Door Between Switchgear Room 1-C and 590' Elevation Auxiliary Building Corridor | |
| TI 2515/146 | U.S. NRC Temporary Instruction - Hydrogen Storage Locations | December 14, 2001 |
| BTP ASB 9.5-1 | U.S. NRC Branch Technical Position 9.5-1 - Guidelines for Fire Protection for Nuclear Power Plants | Revision 1 |
| | Consumer Power Company - List of Changes and Response to Appendix A to Branch Technical Position APCSB 9.5-1 and Regulatory Guides 1.78 and 1.101 | Revision 2 August 24, 1996 |
| FSAR 9.6 | Final Safety Analysis Report, Section 9.6 - Fire Protection | Revision 23 |
| | U.S. NRC Fire Protection Safety Evaluation Report by the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission in the Matter of Consumers Power Company Palisades Plant | September 1, 1978 |

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0200926 | Incorrect Label on Turbine Building Exhaust Fan V-21R |

| | |
|---|---|
| CPAL0200606 | Pressure Switch PS-1602A Sprinkler Header Air Pressure Switch to Volume Reduction System is Not Accurately Described in the AMMS Equipment Database |
| CPAL0201015 | Diesel Driven Fire Pump P-9B Packing Overheated During Performance of Technical Specification Surveillance Test MO-7B |
| CPAL0201160 | NRC Identified Diesel Generator Corridor Fire Door Frames Are Not in Compliance With Our 1978 Safety Evaluation Report Licensing Basis |
| CPAL0200988 | MO-7B - Fire Water Pump P-9B Test Failed Due to Overheated Pump Packing |
| CPAL0201223 | Attempt to Start Electric Fire Pump P-9A per SOP-21 Using T-handle was Unsuccessful |
| CIED0201224 | Temporary Instruction 2515/146: Hydrogen Storage Locations |
| CPAL02001341 | Condition Report 02-01160 Classified at a Lower Significance Level Than Appropriate |

1R11 Licensed Operator Requalification
Sections 1R11.1 through R11.6

| | | |
|---|---|---|
| LORT Plan | Palisades Licensed Operator Requalification (PLOR) 2 Year Training Plan | 2000-2002 |
| Written Exam | 2001 Licensed Operator Requalification Biennial Written Exam | June 24, 1905 |
| Operating Exam Simulator Scenarios | 2002 Two Simulator Scenarios; SPE-13, SPE-31 | February 18, 2002 |
| Operating Exam JPMs (Initial Set) | 2002 Five JPMs; TBAM-16, TBAR-JP-04, TBAG-01, ASFA-01B, ASFE-04 | February 18, 2002 |
| Operating Exam JPMs (Replacement) | 2002 Five JPMs to Replace Initial Set; TBAM-04, TBAB-04, ASHH-01, ASDC-01, ASAC-01A | February 21, 2002 |
| Palisades Nuclear Training (PNT) Procedure No. 13.2 | Licensed Operator Requalification Examination Development and Administration | Revision 2 |
| PNT-11.0 | Plant Operations Training Program Guides | Revision 1 |

| | | |
|---|---|---|
| PNT-12.0 | Licensed Operator Examination Security | Revision 1 |
| PLOR 2000 Cycle | Historical List of Training - 06/04/00 thru 12/13/01 | Various |
| Program Description | Palisades Licensed Operator Requalification Training Program Description | Revision 0 |
| Admin Procedure No. 4.00 | Operations Organization, Responsibilities and Conduct | Revision 23 |
| Admin Procedure No. 4.05 | Operator Training | Revision 18 |
| Admin Procedure No. 10.46 | Plant Records | Revision 14 |
| Admin Procedure No. 11.00 | Plant Training Organization and Responsibilities | Revision 17 |
| Admin Procedure No. 11.40 | Systematic Approach To Training: Implementation | Revision 3 |
| Admin Procedure No. 13.0 | Evaluation and Test Item Development | Revision 0 |
| TRRCMS RPT -205 | Attendance Records For 12 Classes (Randomly Selected) | May 15, 2000 to February 26, 2002 |
| Emergency Plan Implementing Procedure No. EI-1 | Emergency Classification and Action | Revision 38 |
| Emergency Plan Implementing Procedure No. EI-3 | Communications and Notifications | Revision 18 |
| Emergency Plan Implementing Procedure No. EI-6.10 | Offsite Dose Calculation – Straight Line Gaussian (Manual Method) | Revision 5 |
| Emergency Plan Implementing Procedure No. EI-6.13 | Protective Action Recommendations For Offsite Population | Revision 10 |

| | | |
|---|---|---|
| Cycle 2000F | 2001 Annual Performance Exams | June 24, 1905 |
| Medical Records | Selection of Six Licensed Operator Medical Records | Various |
| Medical Records | Computer Print Out - Periodic Report on License Medical Data (Medical Exam Due Dates) | Various |
| CPAL0001362 | Condition Report Concerning One Operator Failed Annual JPM Examination | April 28, 2000 |
| CPAL0103093 | Condition Report Concerning Learning Objectives | September 26, 2001 |
| CPAL0200850 | Condition Report Concerning Emergency Action Level Classification | March 1, 2002 |
| CPAL0200790 | Condition Report Concerning Exam Security | February 26, 2002 |
| CPAL0200828 | Condition Report Concerning Canceled Afternoon JPMs | February 28, 2002 |
| CPAL0200852 | Condition Report Concerning Enhancement to Exam Security Procedure | March 1, 2002 |
| CPAL0200853 | Condition Report Concerning Enhancement to Training Remediation Procedure | March 1, 2002 |
| A-01-016 | Nuclear Oversight Department Audit Report on Palisades Training and Staff Qualifications | November 1, 2001 |
| Various | Matrix on Palisades Operations Training to Satisfy Risk Important Operator Actions | Various |
| 2002-001-8-002 | Nuclear Oversight Observation Report - Reactor Startup and Generator Synchronization | January 30, 2002 |
| 2001-004-8-032 | Nuclear Oversight Observation Report - Licensed Operator Simulator Training for Plant Restart Preparations | December 14, 2001 |
| PNT 7.0, Attn 5A | Current Year Simulator Scenario Crew and Individual Evaluation Reports - One Staff and One Shift Crews | February 27, 2002 |
| S-00-04 | Audit/Surveillance Report on Operations Training Records | March 20, 2000 to March 24, 2000 |
| Training 2001-02 | Palisades Operations Training Self-Assessment | July 23, 2001 to July 27, 2001 |

| | | |
|---|---|---|
| Self-Assessment | Palisades Nuclear Plant - Comprehensive Self-Evaluation for Select Training Programs | December 7, 2000 to December 15, 2000 |
| PNT 7.0, Attn 5 | Simulator Scenario Crew and Individual Evaluation Report - Three Shift Crew Failure and Subsequent Remediation Evaluation | December 18, 2000<br>February 15, 2001<br>March 8, 2001 |
| SDR20-01-034 | Palisades Simulator Deficiency Report | March 2, 2001 |
| TRRCMS SRN-1300 | Various Computer Print Out for Group Attendance Course Completion and Review | September 7, 2001 thru October 4, 2001 |
| TRRCMS RPT-210 | Computer Print Out - Requirements Completed Report for Emergency Plan - Dose Assessment Training | January 1, 2000 thru February 26, 2002 |
| Various | Computer Print Outs on Task to Terminal and Enabling Objectives | February 26, 2002 |
| TBAH-SEG 1.01C | Simulator Exercise Guide - Course Title: Continued Licensed Operator Training | September 4, 2001 |
| Various | Staff Licensed Operations Proficiency Watch Record | Four Qtrs 2000, Four Qtrs 2001, First Qtr 2002 |

1R11.7 Resident Inspector Quarterly Licensed Operator Requalification

Plant Procedures

| | | |
|---|---|---|
| ONP-25.2 | Alternate Safe Shutdown Procedure | Revision 17 |
| SOP-2A | Chemical and Volume Control System | Revision 46 |
| EOP Supplement 7 | Battery #1 Load Stripping | Revision 5 |

Job Performance Measures

| | | |
|---|---|---|
| TBAR-JP-04 | Reduce Station Battery #1 Loading To Less Than or Equal To 150 AMPS | Revision 1 |

| | | |
|---|---|---|
| TBAM-16.JPM | Re-energize Bus 13 Per The Alternate Safe Shutdown Procedure | Revision 1 |

Miscellaneous Documents

Operator Performance Evaluation Examination Results

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0200976 | Annual Examination In-plant JPM Invalidated Due To Cuing |
| CPAL0201158 | Re-Evaluation of Previously Taken JPM Results in Failure of that JAM |
| CPAL0201414 | Inappropriate Significance Level Assigned to Corrective Action Documents |

1R12 Maintenance Rule Implementation

| | | |
|---|---|---|
| | Control Rod Drive System Maintenance Rule Scoping Document and associated Maintenance Rule Performance Indicators | Revision 2 |
| | Control Rod Drive System Health Assessments - 1st/2nd Quarter 2001 | |
| | High Pressure Air System Maintenance Rule Scoping Document and associated Maintenance Rule Performance Indicators | Revision 2 |
| | 2400 Volt AC Maintenance Rule Scoping Document and associated Maintenance Rule Performance Indicators | Revision 2 |
| | 2400 Volt AC Power System Health Assessments - 1st/2nd Quarter 2001 | |
| EM - 25 | Maintenance Rule Program | Revision 3 |

Condition Reports Reviewed To Assess Maintenance Rule Evaluations

| | |
|---|---|
| CPAL0101588 | Water Inside Drive Motor of Control Rod Drive No. 35 |

| | |
|---|---|
| CPAL0102186 | Primary Coolant System Pressure Boundary Leakage, Control Rod Drive No. 21 Support Tube |
| CPAL0104064 | Control Rod Drive Mechanism Seal Housing Component Cooling Water Hose Condition May Not Support Operation Until 2003 ReFout |
| CPAL0104204 | Special Test T-370 Specifies Non-Conservative Shut-Down Margin |
| CPAL0100934 | System Operating Procedure - 20, Attachment 4 Not Updated to Reflect Change Made to Meet Appendix R Concerns |
| CPAL0101229 | Check Valve CK-CA476 Soft Seat (O-Ring) Disengaged from Plug, Piston Bore Found Unsatisfactory |
| CPAL0103600 | Compressor C-6C High Pressure Air Compressor Oil Level Cutout Switch Unreliable |
| CAPL0104195 | Unable To Realign 2400 V Busses 1C and 1E to the Safeguards Transformer |

Condition Reports Reviewed To Assess Corrective Actions

| | |
|---|---|
| CPAL0103069 | Bus 1D Voltage Below 2300 Volts For Four Minutes |
| CPAL0102505 | Inadequate Maintenance Rule Impact Determination For Degraded Grid Voltage |
| CPAL0101065 | Inadequate Labeling Inside Junction Box J9400 |
| CPAL0101229 | Check Valve CK-CA476 Soft Seat (O-Ring) Disengaged from Plug, Piston Bore Found Unsatisfactory |
| CPAL9902216 | Check Valve CK-CA476 Failed to Meet Test T-278-9C Acceptance Criteria |
| CPAL9902778 | Re-work on Check Valve CK-CA476 |
| CPAL9800785 | Check Valve CK-CA476 Fails Leak Rate per Test T-278-9C |
| CPAL9601793 | Predetermined and Periodic Activity Control PPAC X-OPS432 “Verification of Operability of Check Valve CK-CA476 |

Miscellaneous Documents

| | | |
|---|---|---|
| WO24112495 | Work Order - Test Jacks on Switch "CC" Should Be Numbered | July 5, 2001 |
| SOP-30, Section 4.2 | Standard Operating Procedure -30, "Station Power," "Voltage Requirements" | Revision 31 |
| EAR 2001-0524 | Engineering Assistance Request, "Install Voltage Regulator ON Secondary Side of Startup Power Transformer 1-2 (EX-04)" | October 18, 2001 |
| EAR-2001-0371 | Engineering Assistance Request - Install New Type of Check Valve at CK-CA476 | |
| EAR-99-0332 | Engineering Assistance Request - CK-CA476 Failed During Test T-278-C, Install Filtration Upstream of Check Valve CK-CA476 | |
| EA-SC-87-273 | Completed Engineering Analysis - Replace Check Valve CK-CA476 in Response to D-PAL-87-087 | October 1987 |
| WO 24614622 | Completed Work Order - CK-CA476 Failed Leak Test, Repair as Necessary | December 15, 1996 |
| WO 24811410 | Completed Work Order - CK-CA476 Failed Leak Rate per Test T-278-9C, CPAL9800785 | May 5, 1998 |
| WO 24913049 | Completed Work Order - CK-CA476, Contingent Work Request. Replace soft seat in CK-CA476 Tested Unsatisfactory | November 2, 1999 |
| WO 24913581 | Completed Work Order - CK-CA476, Check Valve Leaks By, Rebuild as Needed C-PAL-99-02778 | April 8, 2001 |
| Vendor File M0114 0062 | Vendor File - Henry Vogt Machine Co. Care and Maintenance Bulletin for Forged Steel Gate, Globe, Angle and Check Valves | |
| Vendor File M0114 0038 | Vendor File - Henry Vogt Machine Co. Maintenance Instructions and Specifications for Zero Leakage Forged Steel Check Valves | |

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0201343 | Untimely Implementation of Actions to Repair High Pressure Air Check Valve (CK-CA476) |

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

Plant Procedures

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

Other Documents

Operator's Risk Reports and Shift Supervisor Log Entries for February 7 through February 12, 2002, during emergent maintenance activities on Component Cooling Water Pump P-52C

Operator's Risk Reports and Shift Supervisor Log Entries for March 18 through March 22, 2002, during scheduled maintenance activities on High Pressure Safety Injection Pump P-66A

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0201127 | QO-19 Inservice Test for High Pressure Safety Injection Pump P-66A Aborted Due to Packing Leak on MV-ES102 Pump P-66A Miniflow Bypass Valve |
| CPAL0201123 | LIC-1001 Primary System Drain Tank T-74 Level Controller Would Not Allow Draining of the Primary System Drain Tank T-74 Which Caused Deletion of Section 5.3 of QO-19, "Inservice Test Procedure - High Pressure Safety Injection Pumps and Engineered Safeguards System Check Valve Operability Test" |
| CPAL0201455 | Lack of Post Maintenance Test Following Hand Switch Cleaning Activities |
| CPAL0201431 | Inadequate Post Maintenance Test Requirements/Documentation on CRHVAC Work Orders |

1R15 Operability Evaluations

| | |
|---|---|
| CPAL0200546 | Operability Recommendation for Condition Report, "Valve Seat Material Found Loose In Component Cooling Water System" |

| | | |
|---|---|---|
| CPAL0200702 | Operability Recommendation for Condition Report, “Attempts To Disassemble MV-CC923 Aborted; Restoration Identifies New Condition” | |
| CPAL013563 | Past Operability Recommendation for Condition Report, “Containment Sump Check Valve Laboratory Testing Results are Inconsistent with Emergency Core Cooling System Model” | |

Miscellaneous Documents

| | | |
|---|---|---|
| | Correspondence to U.S. NRC from Nuclear Management Company, LLC, entitled, “Cancellation of Licensee Event Report 01-005, containment Sump Check Valves / Reduced Available Net Positive Suction Head” | March 4, 2002 |
| Reg. Guide 1.1 | NRC Regulatory Guide 1.1, “Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal System Pumps” | November 1970 |
| Reg. Guide 1.82 | NRC Regulatory Guide 1.82, “Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident” | May 1996 |
| NUREG-0869, Rev. 1 | NRC NUREG, “Regulatory Analysis for Unresolved Safety Issue (USI) A-43 - Containment Emergency Sump Performance” | October 1985 |
| NUREG-0897, Rev. 1 | NRC NUREG, “Containment Emergency Sump Performance - Technical Findings Related to Unresolved Safety Issue A-43" | October 1985 |
| EA-C-PAL-01-00764-02 | Determination of the Head Loss Characteristics of Containment Sump Check Valves CK-ES3166 and CK-ES3181 for the Period from June 1995 to December 2001 | Revision 0 |
| | Licensee Developed Timeline Entitled, “Emergency Core Cooling System Net Positive Suction Head Issue Identification, Evaluation and Resolution Timeline | February 2002 |
| | Correspondence to U.S. NRC from Consumers Energy, entitled, “Response to Generic Letter 97-04 - Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps” | |

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0200527 | Pieces of Hard Black Rubber Found Inside Pump Casing During Disassembly |
| CPAL0200756 | Potential Containment Spray Pump Component Cooling Water Flow Rate Anomalies Recorded During 2001 Performance of Special Test T-223 |
| CPAL0200562 | CCW Pump P-52C Inboard Pump Bearing Oil Getting Dark |
| CPAL0201139 | Engineering Analyses EA-GEJ-2002-01, Revision 0 Not Identified as Potentially Affected by Condition Report CPAL0201099 |
| CPAL0201413 | Condition Reports Not Generated as Expected |

1R17 Permanent Plant Modifications

| | | |
|---|---|---|
| B3.7.7 | Technical Specification Bases - Component Cooling Water System | August 1, 2001 |
| FSAR Section 9.3 | Component Cooling System | Revision 23 |
| DBD 1.01 | Design Basis Document - Component Cooling Water System | March 17, 2001 |
| SOP-16 | System Operating Procedure - 16 - Component Cooling Water System | Revision 22 |
| QO-15 | Technical Specification Surveillance Procedure - Inservice Test Procedure - Component Cooling Water Pumps | Revision 16 |
| QO-15 | Technical Specification Surveillance Procedure Basis Document - Inservice Test Procedure - Component Cooling Water Pumps | Revision 10 |
| SDR-02-0110 | Safety Determination Review - 10 CFR 50.59 Screen - Technical Specification Bases Change for B3.7.7 | February 9, 2002 |
| SER | NRC Safety Evaluation Reports for Improved Technical Specification 3.7.7 - Component Cooling Water System | |

1R19 Post Maintenance Testing

Completed Work Orders and Post Maintenance Tests

| | | |
|---|---|---|
| 24113516 | TD-1 and TD-4; Inspect and Lubricate | March 6, 2002 |
| 24113337 | V-26A Flow Control | March 5, 2002 |
| 24210859 | FSX-1711: Relay Contacts 1, 7 Are Not Closing | March 5, 2002 |
| 24113336 | Air Handling Unit V-95 Discharge Air Flow | March 5, 2002 |
| 24112314 | PO-1745, General Condition Check | March 5, 2002 |
| 24113338 | VC-11 Discharge Pressure Control | March 5, 2002 |
| 24113339 | HVAC Power Supply P/S-1655 Testing | March 5, 2002 |
| 24113160 | Air Handling Unit V-95 Modulating Damper D-2 | March 6, 2002 |
| 24113283 | Contact Cleaning For HS-1745A | March 5, 2002 |
| QO-19 | Technical Specification Surveillance and Special Test Procedure - Inservice Test Procedure - High Pressure Safety Injection Pumps and Engineered Safeguards System Check Valve Operability Test, March 21, 2002 | Revision 22 |

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0201127 | QO-19 Inservice Test for High Pressure Safety Injection Pump P-66A Aborted Due to Packing Leak on MV-ES102 Pump P-66A Miniflow Bypass Valve |
| CPAL0201123 | LIC-1001 Primary System Drain Tank T-74 Level Controller Would Not Allow Draining of the Primary System Drain Tank T-74 Which Caused Deletion of Section 5.3 of QO-19, “Inservice Test Procedure - High Pressure Safety Injection Pumps and Engineered Safeguards System Check Valve Operability Test” |

1R22 Surveillance Testing

Completed Technical Specification Surveillance Tests

| | | |
|---|---|---|
| QI-2 | Technical Specification Surveillance Procedure - Reactor Protective Trip Units, March 4, 2002 | Revision 1 |

| | | |
|---|---|---|
| RE-133 | Technical Specification Surveillance Procedure - Performance Test - Battery Chargers, February 12, 2002 | Revision 2 |
| RE-132 | Technical Specification Surveillance Procedure - Diesel Generator 1-2 Load Reject, February 20, 2002 | Revision 2 |
| QO-1 | Technical Specification Surveillance Procedure - Safety Injection System, March 2, 2002 | Revision 3 |
| QO-16 | Technical Specification Surveillance Procedure - Inservice Test Procedure - Containment Spray Pumps, March 12, 2002 | Revision 19 |

Miscellaneous Documents

| | | |
|---|---|---|
| QI-2/QI-2A | Technical Specification Surveillance Procedure Basis Document | Revision 1 |
| RE-133 | Technical Specification Surveillance Procedure Basis Document - Performance Test - Battery Chargers | Revision 0 |
| RE-132 | Technical Specification Surveillance Procedure Basis Document - Diesel Generator 1-2 Load Reject | Revision 0 |
| QO-1 | Technical Specification Surveillance Procedure Basis Document - Safety Injection System | Revision 47 |
| QO-16 | Technical Specification Surveillance Procedure Basis Document - Inservice Test Procedure - Containment Spray Pumps | Revision 13 |
| T-223 | Completed Test Results from Special Test T-223 - Component Cooling Water Flow Balance from the 1999 and 2001 Tests | |
| | Component Cooling Water Flow Data to Engineered Safeguards Pumps Taken During Normal Auxiliary Operator Rounds in March 2000 | |

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0200883 | RPS Inoperability Extended By Burnt Out Light Bulbs |
| CPAL0200864 | Unexpected Safety Injection Tank T-82D HI/LO Level Alarm During Safety Injection System Testing |

| | | |
|---|---|---|
| CPAL0200865 | DC Bus #2 Ground Discovered During QO-1 Safety Injection Test | |
| CPAL0200915 | FA-0102D, Low Flow RPS Bistable Trip, Number One Matrix Light Burned Out | |
| CPAL0201038 | Incorrect System Engineering Guidance Given for QO-16 Revision | |
| CPAL0201025 | Component Cooling Water Flow Rates to Containment Spray Pump P-54C Below Expected Value | |
| CPAL0201026 | Component Cooling Water Flow Rates to Containment Spray Pump P-54B Below Expected Value | |
| CPAL0201457 | No Verification Performed of Critical Voltage Check During Technical Specification Test QI-2, "Reactor Protective Trip Units" | |
| CPAL0201458 | Unexpected Delay Occurred During the Performance of Technical Specification Test QI-2, "Reactor Protective Trip Units" | |

1R23 Temporary Plant Modifications

| | | |
|---|---|---|
| Admin. 9.03 | Administrative Procedure - Temporary Modification Control | Revision 18 |
| | Engineering Package for Temporary Modification No. TM-2001-026, including associated 10 CFR 50.59 Screening | January 4, 2002 |
| W.O. 24114288 | Work Order - Installation of Temporary Modification No. TM-2001-026 | |

4OA2 Identification and Resolution of Problems

Condition Reports Reviewed To Assess Corrective Actions

| | | |
|---|---|---|
| CPAL0200059 | Fire Pump P-9A tripped after running for approximately three minutes apparent cause evaluation | February 4, 2002 |

Condition Reports Reviewed To Assess Problem Identification Characterization

| | | |
|---|---|---|
| CPAL0200622 | Inadequate Post Maintenance Testing (PMT) Specified In Work Order 24114415 (52-1305) | |

4OA3 Event Follow-up

| | | |
|---|---|---|
| Admin. 3.21 | Administrative Procedure - Validation of Correspondence to Regulatory Agencies and INPO | Revision 1 |
| | Validation and Verification Package for Correspondence to U.S. NRC from Consumers Energy Corporation entitled, “Supplementary Information Regarding Resolution of Unresolved Item 95004-05" | May 25, 2001 |
| | Validation and Verification Package for Correspondence to U.S. NRC from Consumers Energy Corporation entitled, “Licensee Event Report 01-003, Small Fire of Suspicious Origin Within the Plant Protected Area” | June 19, 2001 |
| | Validation and Verification Package for Correspondence to U.S. NRC from Nuclear Management Company, LLC, entitled, “Plan for Implementation of Palisades Plant Emergency Minimum Staffing Changes” | July 31, 2001 |
| | Validation and Verification Package for Correspondence to U.S. NRC from Nuclear Management Company, LLC, entitled, “Palisades Plant Response to NRC Bulletin 2001-01 | August 31, 2001 |
| | Validation and Verification Package for Correspondence to U.S. NRC from Nuclear Management Company, LLC, entitled, “Response to NRC Request for Additional Information Regarding Emergency Plan Staffing Changes” | October 1, 2001 |
| | Validation and Verification Package for Correspondence to U.S. NRC from Nuclear Management Company, LLC, entitled, “SQUG Outlier Resolution - Revision of Commitment” | January 15, 2002 |
| | Correspondence to U.S. NRC from Nuclear Management Company, LLC, entitled, “NRC Bulletin 2001-01:Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles - Updated Response” | March 29, 2002 |

| | | |
|---|---|---|
| | Correspondence to U.S. NRC from Nuclear Management Company, LLC, entitled, "Cancellation of Licensee Event Report 01-005, containment Sump Check Valves / Reduced Available Net Positive Suction Head" | March 4, 2002 |
| SC-94-130 | Specification Change - Addition of Lever Arm and Stuffing Box Assembly to Containment Sump Check Valves CK-ES3166 and CK-ES3181 | |
| Reg. Guide 1.1 | NRC Regulatory Guide 1.1, "Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal System Pumps" | November 1970 |
| Reg. Guide 1.82 | NRC Regulatory Guide 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident" | May 1996 |
| NUREG-0869, Rev. 1 | NRC NUREG, "Regulatory Analysis for Unresolved Safety Issue (USI) A-43 - Containment Emergency Sump Performance" | October 1985 |
| NUREG-0897, Rev. 1 | NRC NUREG, "Containment Emergency Sump Performance - Technical Findings Related to Unresolved Safety Issue A-43" | October 1985 |
| EA-C-PAL-01-00764-02 | Determination of the Head Loss Characteristics of Containment Sump Check Valves CK-ES3166 and CK-ES3181 for the Period from June 1995 to December 2001 | Revision 0 |
| | Licensee Developed Timeline Entitled, "Emergency Core Cooling System Net Positive Suction Head Issue Identification, Evaluation and Resolution Timeline | February 2002 |
| | Correspondence to U.S. NRC from Consumers Energy, entitled, "Response to Generic Letter 97-04 - Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps" | |

Condition Reports Reviewed To Assess Problem Identification Characterization

| | |
|---|---|
| CPAL0200906 | NRC Commitment Requiring a Modification has no Supporting Engineering Assistance Request |

Condition Reports Reviewed To Assess Evaluations and Corrective Actions

| | |
|---|---|
| CPAL0100764 | Performance of Containment Sump Check Valves During Post-Design Basis Accident Recirculation Mode May Not Be Acceptable |
| CPAL0103563 | Containment Sump Check Valve Lab Testing Results Are Inconsistent with Emergency Core Cooling System Model |
| CPAL0100531 | Appendix R Analyses Basis Does Not Adequately Document A Turbine Building Fire Safe Shutdown Path |
| CPAL0100259 | Removal of Auxiliary Feedwater Control Valve CV-0522A Supply to Pump P-8B Was Not Adequately Reviewed Against Appendix R Analyses |
| CPAL0100797 | Appendix R Program Deficiencies |