December 17, 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 PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION
REPORT 50-255/02-10

Dear Mr. Cooper:

On November 22, 2002, the U. S. Nuclear Regulatory Commission (NRC) completed a team inspection at the Palisades Nuclear Generating Plant. The enclosed report documents the inspection findings which were discussed on November 25, 2002, with you and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations and with the conditions of your operating license. Within these areas, the inspection involved selected examination of procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected for review, the team concluded that in general, problems were being properly identified, evaluated, and corrected. The team made several observations regarding the effectiveness of problem identification and resolution program implementation. For example, the team identified several minor examples of implementation deficiencies such as some departments not routinely entering problems into the corrective action system, several examples of narrowly focused problem evaluations, and several examples of corrective actions not being effective in preventing problem recurrence. On the positive side, the team noted that corrective actions to alleviate a previously identified cross-cutting issue in human performance have, to date, been effective, and that Nuclear Oversight was effectively identifying performance issues. The team also noted that corrective action program improvements had only recently been implemented and therefore, the effectiveness of these initiatives could not be fully assessed. The team concluded that except for some isolated examples the corrective action program was effective in ensuring that conditions adverse to quality were being adequately addressed.

There was one Green finding identified during this inspection associated with the failure to follow the procedure for the control of scaffolding. The finding illustrated several corrective action problems involving the identification of the issue, extent of condition, and follow through of corrective actions. This finding was determined to be a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your

corrective action program, the NRC is treating this finding as a Non-Cited Violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny this Non-Cited Violation, you should provide a response with the 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 copies to the Regional Administrator, Region III; the Director, Office of Enforcement, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Palisades Nuclear Generating Plant.

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/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Anton Vegel, Chief
Branch 6
Division of Reactor Projects

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

Enclosures: Inspection Report No. 50-255/02-10

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DRP-20
Report No:	50-255/02-010(DRP)
Licensee:	Nuclear Management Company, LLC
Facility:	Palisades Nuclear Generating Plant
Location:	27780 Blue Star Memorial Highway Covert, MI 49043-9530
Dates:	November 4 through November 22, 2002
Inspectors:	L. Collins, Lead Inspector K. Coyne, Operations Engineer, NRR D. Schrum, Reactor Inspector
Approved by:	Anton Vegel, Chief Branch 6 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000255-02-010, on 11/04 - 11/22/2002, Nuclear Management Company, LLC, Palisades Nuclear Generating Station; identification and resolution of problems.

The inspection was conducted by two region-based inspectors and one headquarters-based inspector. This inspection identified one Green finding, which was a Non-Cited Violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Identification and Resolution of Problems

In general, the plant identified issues and entered them into the corrective action process at an appropriate low-level, although some exceptions to this practice were identified. Nuclear Oversight assessment reports identified issues for the plant to resolve, including issues with corrective action follow through. The majority of issues reviewed were properly categorized and evaluated although some evaluations were narrowly focused, particularly for apparent cause evaluations and extent of condition reviews. Most corrective actions reviewed were appropriately implemented; however, some examples, including one inspection finding, were identified regarding corrective actions that were not fully implemented or fully effective in correcting the identified problem. Corrective action follow-through and effectiveness is one aspect of the corrective action process that could be strengthened to reduce repeat issues at the plant.

Cornerstone: Mitigating Systems

Green. The inspectors identified a finding of very low safety significance that is being treated as a Non-Cited Violation of Technical Specification 5.4.1 "Procedures." The licensee failed to adequately implement scaffold control requirements contained in procedure MSM-M-43, "Scaffolding." Seismic scaffolding erected over Component Cooling Water (CCW) pump P-52A was anchored to a safety related pipe support for CCW pump P-52B without engineering evaluation and approval.

The finding was greater than minor because the finding would become a more significant concern if left uncorrected. The failure of scaffolding installed in the vicinity of safety-related equipment during a seismic event could result in damage to mitigating equipment. The finding was of very low safety significance because it did not result in the actual loss of the safety function of the train or system (4OA2.3).

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

.1 Effectiveness of Problem Identification

a. Inspection Scope

The inspectors reviewed inspection reports issued over the last year, selected plant corrective action documents, Nuclear Oversight assessments, trend reports, operating experience and a sample of procedure change requests in order to determine if problems were being identified at the proper threshold and entered into the corrective action process. The inspectors also conducted a focused plant walkdown of the Component Cooling Water system to ensure that equipment problems were entered into the corrective action system. The documents listed in Attachment were used during the review.

b. Issues

In general, the plant identified issues and entered them into the corrective action process at an appropriate low-level, although some exceptions to this practice were identified. Nuclear Oversight assessment reports identified issues for the plant to resolve, including issues with corrective action follow through. The trending program was inconsistently implemented with some departments effectively trending and others not performing trending at all. Details of these and other observations are described in the following sub-sections.

b.1 Identification Threshold

The licensee had defined an adequate threshold for the identification of issues to be entered into the corrective action program in accordance with Palisades Nuclear Plant Administrative Procedure No. 3.03 “Corrective Action Process”. The current electronic database system was called TeamTrack and was implemented in August 2002. A corrective action document in Team Track was called an Action Request (AR) or CAP. Prior to TeamTrack, corrective action documents were called condition reports or CPALs. The generation rate for CAPs was fairly high with almost 4000 CAPs generated to date in 2002. While the threshold appeared adequate and the generation rate was good, the inspectors found several examples of either the NRC identification of issues that were not entered into the corrective action system or specific plant programs or departments not effectively identifying issues within the corrective action system. While some of these issues represented conditions adverse to quality, none were considered to be significant conditions adverse to quality. The issues included the following:

- Deficiencies identified during fire drills were not always entered into the corrective action system

- Spent fuel cooling system pump 51A required frequent operations' monitoring and oil addition for several months. A work request was initiated for maintenance but no CAP was written.
- The resident inspectors identified an inadequate operability evaluation and an inadequate procedure used during operator requalification training.
- The licensee identified that the CAP initiation threshold was too high for security department issues and emergency plan drill issues.

The license initiated CAPs on all of the issues listed above.

b.2 Procedure Change Requests

The inspectors determined that the Procedure Change Request (PCR) program, which was used to track planned revisions to facility procedures, could allow conditions adverse to quality to bypass the corrective action program. Because the licensee maintained the PCR program independent of the corrective action program, procedure deficiencies could be entered into the PCR database without initiation of a corresponding CAP. The inspectors reviewed eleven PCR database entries not related to a condition report and identified one condition adverse to quality that was not identified within the corrective action program. Specifically, a drawing configuration control deficiency identified in PCR 21030 should have been documented in a condition report per the guidance contained in Administrative Procedure 3.03, Attachment 7, "Palisades Corrective Action Process (CAP) Significance Guidelines." The licensee documented the failure to initiate a condition report associated with PCR 21030 in CAP032212. Although this issue was of minor significance, the inspectors concluded that the use of a PCR database separate from the corrective action program could allow conditions adverse to quality to be processed outside of the corrective action program.

b.3 Trending

The licensee inconsistently implemented condition report trending requirements contained in plant procedures. Although Administrative Procedure 3.03, Section 6.13, "Corrective Action Trending," required periodic condition report trending, the licensee failed to implement a station-wide condition report trending program. Specifically, the licensee was unable to demonstrate that the security, training, and engineering departments implemented these trending requirements. However, the inspectors noted that some individual departments, including the operations and maintenance departments, performed periodic reviews of condition reports to assess performance trends. The inspectors concluded that the failure to adequately implement procedural requirements for trending could result in the failure to identify and correct adverse performance trends. The licensee initiated CAP032007 to document this issue and stated that a station-wide trending program was being developed.

b.4 Operating Experience

The inspectors reviewed a sampling of 13 industry operating experience (OE) items and concluded that the licensee adequately evaluated OE items and appropriately identified related plant issues. The inspectors noted some minor documentation weaknesses in operating experience evaluations and one minor inconsistency between an operating experience evaluation and plant practices associated with the use of high pressure plastic tubing during testing. The licensee initiated CAP032213 to further evaluate the latter issue.

b.5 Nuclear Oversight

The inspectors reviewed the last four quarterly Nuclear Oversight (NOS) assessment reports and determined that the NOS staff, in general, effectively identified plant performance issues. In particular, the inspectors did not identify significant performance issues during the inspection that were not described in previous NOS assessment reports. However, the inspectors noted that the licensee did not consistently resolve NOS identified issues. For example, since the fourth quarter of 2001, quarterly oversight audits identified repetitive issues with corrective action adequacy and follow through that were not adequately resolved. Additionally, NOS staff identified issues related to control of contractor personnel and implementation of corrective actions by the maintenance department similar to repetitive issues identified by the inspectors. The inspectors concluded that, although the NOS staff effectively identified performance issues, the licensee failed to consistently resolve NOS identified problems.

.2 Prioritization and Evaluation of Issues

a. Inspection Scope

The inspectors conducted an independent assessment of the prioritization and evaluation of a selected sample of corrective action program documents. The assessment included a review of the category assigned, operability and reportability determinations, extent of condition evaluations, cause investigations, and the appropriateness of the assigned corrective actions. The inspectors also attended several Condition Review Group (CRG) meetings during which CAPs are screened and assigned a significance level and Corrective Action Review Board (CARB) meetings which reviewed completed root cause evaluations. The documents listed in Attachment were used during the review.

b. Issues

The majority of issues reviewed were properly categorized and evaluated. The team had several observations regarding narrow or limited evaluations, particularly for apparent cause evaluations and extent of condition reviews. Details of these and other observations are described in the following sub-sections.

b.1 Overview of Prioritization/Evaluation Process

The corrective action process included a review of newly initiated CAPs by the Condition Review Group (CRG), which included senior plant management. The CRG would assign a significance level to each CAP, with "A" being a Significant Condition Adverse to Quality (SCAQ) requiring a root cause evaluation, "B" was a Condition Adverse to Quality (CAQ) requiring an apparent cause evaluation, and "C" was a CAQ requiring a condition evaluation to determine the proper corrective actions. A significance level "D" was also available for conditions that were not adverse to quality.

The backlog of open CAPs was at approximately 1770 at the time of the inspection. This backlog included CAPs that required evaluation and CAPs for which the evaluation was complete but the corrective actions were not yet complete. This backlog did not meet the station goal for the backlog but appeared to be understood and was receiving appropriate management attention.

b.2 Evaluation Observations

The inspectors' observations regarding narrowly focused cause evaluations or extent of condition evaluations are described in the following paragraphs.

- The licensee did not promptly assess the condition of the CCW pump P-52B motor following a catastrophic failure of the CCW pump P-52C motor on January 2, 2002. In the CPAL020014 root cause evaluation for the P-52C motor failure, the licensee was unable to determine a specific cause, but postulated that an original winding defect or manufacturing issue contributed to the motor failure. The licensee noted that the pump P-52B motor was manufactured by the same vendor as the P-52C motor and both motors were supplied as original plant equipment. Although the licensee did not provide an adequate basis for concluding that the P-52B motor was not susceptible to a similar failure as P-52C motor, no follow-up actions for testing the condition of the of P-52B motor were identified in the CPAL020014 root cause evaluation.

  On March 6, 2002, engineering personnel submitted work order 24210985 to perform motor testing on P-52B. However, the work order was not associated with a condition report or otherwise linked to the earlier failure of the P-52C motor within the corrective action program. Subsequently, on April 24, 2002, the licensee identified that performance of the P-52B motor testing had been inappropriately delayed and wrote CPAL0201619. Although CPAL0201619 noted that the cause of the P-52C motor failure could be a common mode failure mechanism for P-52B, engineering personnel failed to effectively communicate the importance of performing the P-52B motor testing to scheduling personnel when initiating work order 24210985. The P-52B motor testing was satisfactorily performed on July 30, 2002, approximately 7 months after the P-52C failure. The inspectors concluded that the failure to link the P-52B motor testing to the previous failure of the CCW pump P-52C motor within the corrective action system contributed to the failure to promptly schedule and perform the P-52B testing.

- The apparent cause evaluation and corrective actions for CPAL0101551, associated with the use of an unapproved test procedure, were narrowly focused. On April 11, 2001, the inspectors identified that contractor personnel were performing testing on a CCW heat exchanger with a vendor supplied procedure that was not approved for use by the licensee. The apparent cause evaluation determined that the cause of this issue was that the CCW system engineer was not aware of administrative requirements for the review and approval of vendor procedures. The inspectors noted that the apparent cause evaluation was narrowly focused on the actions of the system engineer and failed to consider other process or procedural barriers that could have prevented use of an unapproved procedure in the plant. Additionally, the actions contained in CPAL0101551 did not specifically address the lack of knowledge by system engineering personnel concerning use of vendor procedures. The licensee stated that these issues would be corrected by station's service coordinator program, which is intended to provide additional oversight for vendor and contractor personnel. The licensee initiated corrective action CA017521 to evaluate the need for specific requirements in the contractor control program for the review of vendor work instructions.

- A National Fire Protection Association (NFPA) code compliance review was performed by an outside vendor as part of an extent of condition (EOC) evaluation for a previous significant NRC finding. During a walkdown of the plant, the NRC identified an impaired sprinkler in the Electrical Equipment Room that was not identified and evaluated during this EOC. The licensee initiated CAP 031655 to document this in the corrective action program. Upon further review, the licensee identified several additional sprinkler issues. Except for this less than rigorous EOC, the licensee performed appropriate corrective actions for this NRC inspection finding.

.3 Effectiveness of Corrective Action

a. Inspection Scope

The inspectors reviewed corrective action documents and recent plant issues to determine if corrective actions were implemented in a timely, appropriate, and effective manner. The inspectors conducted a walkdown of the CCW system with the system engineer to assess the material condition of the system and verify that the licensee appropriately identified degraded conditions within the corrective action program. Additionally, the inspectors evaluated the current status of corrective actions to improve previously identified substantive cross-cutting issues in the areas of corrective actions and human performance. The inspectors also reviewed the licensee's corrective actions for eleven Non-Cited Violations (NCVs) documented by NRC inspections in the past year. The documents listed in Attachment were used during the review.

b. Issues

One Green finding was identified involving the failure to adequately implement seismic scaffolding procedural requirements. This finding illustrated several corrective action

issues. Most notable is that the finding is a repetitive failure to properly implement scaffold control requirements and after appropriate corrective action was specified, the action was not completed. Other examples of corrective action effectiveness or follow-through observations were noted during this inspection and were exhibited in NRC findings in the past year related to repeat issues. Repetitive corrective action follow-through issues were also identified as a Nuclear Oversight finding in July 2002. Licensee corrective actions in response to the Nuclear Oversight finding had been identified but had not yet been implemented. The current inspection finding and other observations are described in the following sections.

b.1 Repetitive Failure to Adequately Implement Seismic Scaffolding Control Requirements

Introduction

The inspectors identified one finding of very low safety significance (Green) associated with the failure to adequately implement scaffold control requirements contained in procedure MSM-M-43, "Scaffolding." The finding was determined to be a violation of NRC requirements and was dispositioned as a Non-Cited Violation of Technical Specification 5.4.1, "Procedures."

Description

On November 5, 2002, the inspectors identified that seismic scaffolding erected over CCW pump P-52A was anchored to a safety related pipe support for CCW pump P-52B without engineering evaluation and approval. Step 5.5.1 of MSM-M-43 required that design engineering provide direction and approval for tie off of scaffolding to supports. Although the MSM-M-43, Attachment 1, "Scaffold Erection Control Checklist," for the scaffold installation was annotated that the scaffold was to be secured to plant equipment, design engineering approval was not obtained prior to scaffold construction. Following identification of this issue, the licensee reconfigured the scaffolding to eliminate the tie off to the CCW pump P-52B suction piping support and initiated CAP 031961 to document this condition. The licensee's immediate corrective actions included a temporary suspension of scaffolding activities, stand down and retraining of scaffold craft workers and supervisors, and extent of condition walk downs to identify other potentially deficient scaffold installations.

During extent of condition walkdowns on November 6, 2002, the licensee identified three additional scaffold installations that failed to comply with the requirements of MSM-M-43:

- Scaffold in 1-D switchgear room was not left in a seismically secure condition during an interruption in work activities (CAP 032013).
- Scaffold in electrical equipment room was not built to seismic requirements. Specifically, a minimum separation of 1 inch between the scaffold and safety-related structures was not maintained and the scaffold was braced to equipment supports (CAP 032010).
- Scaffold in auxiliary feed water pump room was not built to seismic requirements in that a minimum separation of 1 inch between the scaffold and safety-related structures was not maintained (CAP 032012).

The inspectors assessed the effectiveness of the licensee's immediate actions for these scaffolding control deficiencies during subsequent plant walkdowns. The inspectors identified two additional scaffold deficiencies that were not adequately addressed by the licensee's immediate corrective actions:

- On November 8, the inspectors identified that scaffolding installed in the mezzanine adjacent to the 1-D switchgear bus area had not been adequately braced. The licensee previously identified deficiencies in this scaffold installation during initial extent of condition walkdowns on November 6 (CAP 032054).

- On November 18, the inspectors identified scaffold in contact with safety related control room ventilation piping. The licensee later determined that this scaffold deficiency had been identified during the extent of condition walkdowns on November 6, 2002, but no action had been taken to correct the identified deficiency (CAP 032153).

The inspectors concluded that these additional scaffold control issues indicated that the licensee failed to effectively implement the planned corrective actions for the initial scaffold deficiency identified on November 5.

The inspectors reviewed recent licensee scaffold control issues to determine if there had been prior opportunity to address scaffolding procedural adherence deficiencies. On April 19, 2001, the NRC issued NCV 50-255/01-06-02 for three examples of the licensee's failure to satisfy seismic requirements specified in plant procedures. Specifically, in February and March of 2001, the inspectors identified scaffolding and storage racks constructed near the auxiliary feedwater pump P-8B steam supply and the low pressure safety injection pump P-67A suction piping that did not meet procedural requirements. The licensee initiated condition reports C-PAL-01-00652 and C-PAL-01-00695 to document and evaluate the issues described in NCV 50-255/01-06-02. In the root cause evaluation for C-PAL0100695, the licensee determined that the site lacked a programmatic method to control scaffold design, erection, inspection, and approval. The licensee identified several corrective actions to prevent recurrence of these scaffold deficiencies, including revision to scaffold control procedures and additional training. On October 15, 2002, the licensee completed all C-PAL-01-00695 corrective actions to prevent recurrence, with the exception of an effectiveness review. Based on the identification of repetitive failures to adequately control seismic scaffolding between November 5 through November 18, 2002, the inspectors concluded that the corrective actions of CPAL0100695 were not effective in preventing recurrence of scaffolding control problems.

Analysis

The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," because the finding would become a more significant concern if left uncorrected. The failure of scaffolding installed in the vicinity of safety-related equipment during a seismic event could result in damage to mitigating equipment. Specific examples of inadequate scaffolding were identified in the vicinity of component

cooling water, auxiliary feedwater, and power system components. Therefore, continued inadequate control of seismic scaffold installation could affect the operability, availability, reliability, or function of mitigating systems during seismic events.

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

- was not a design or qualification deficiency;
- did not represent an actual loss of safety function of a system;
- did not represent an actual loss of a safety function of a single train for greater than Technical Specification outage time;
- did not represent an actual loss of a safety function of one or more Non-Technical Specification trains of equipment; and
- did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Specifically, the finding does not involve the loss or degradation of equipment or function designed to mitigate a seismic initiating event or the total loss of any safety function

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

Enforcement

Technical Specification 5.4.1, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the activities recommended in Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, Appendix A, Section 9.a, recommends that procedures should be written to cover maintenance that can affect the performance of safety-related equipment. Procedure MSM-M-43, "Scaffolding," Revision 6, was written to provide requirements for maintenance activities that can affect the performance of safety-related equipment, including scaffold erection, inspection, and tagging. Contrary to the above, licensee personnel failed to adequately implement the requirements of procedure MSM-M-43. Specifically, on November 5, 2002, the inspectors identified scaffolding tied off to a suction piping support for CCW pump P-52B without prior engineering direction and approval, contrary to the requirements of step 5.5.1 of MSM-M-43. Additionally, between the period of November 6 and November 18, 2002, four additional examples of scaffolding installations that did not comply with the minimum separation requirements of step 5.4.3.a or the equipment tie off requirements of step 5.5.1 of MSM-M-43 were identified by the licensee and the inspectors. 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 V, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 50-255/02-10-01). This finding is in the licensee's corrective action program as CAP031961, CAP032010, CAP 032012, CAP032013, CAP032054, and CAP032153.

b.2 Observations on the Effectiveness of Corrective Actions

The inspectors had several observations regarding corrective actions that were not fully implemented, not fully effective in correcting the identified issue, or were narrowly focused. These observations are described below.

- The inspectors identified that the corrective actions for a deficient maintenance procedure did not ensure that the procedure would not be used prior to issuance of a necessary procedure revision. Specifically, on July 31, 2002, during a rebuild of CCW pump P-52B, maintenance personnel noted that the pump rotating element had been installed backwards. The licensee performed an apparent cause evaluation for this condition and determined that the maintenance procedure instructions lacked adequate detail for the orientation of the pump rotating assembly. Consequently, an action was generated to revise the associated maintenance procedures. The inspector noted that the corrective action did not prevent further use of the deficient procedure until an appropriate revision could be made. The licensee initiated CAP032145 to address this issue.

- The corrective actions for CPAL0200101, associated with a maintenance error that resulted in a CCW leak of approximately 75 gpm, were inconsistently implemented. During a maintenance activity on January 7, 2002, for primary coolant pump P-50B, maintenance workers failed to tighten a flanged CCW system connection to a CCW lube oil cooler. When the cooler was later placed in service, the CCW system leakage from the flange resulted in an unexpected lowering of the CCW surge tank level. The licensee determined that the root cause of this event was the lack of formality and standards during the job turnover process and inaccurate place keeping in the maintenance work instructions. The corrective actions to prevent recurrence included implementation of a formal job turnover sheet for use by maintenance department supervisors and more formal maintenance procedure place keeping standards by craft workers. The inspectors assessed the licensee's implementation of these actions while observing maintenance activities on Diesel Generator 1-1 on November 6, 2002. The inspectors determined that the actions from CPAL0200101 were inconsistently implemented. Specifically, the mechanical maintenance supervisor did not use the formal turnover sheet as required and a maintenance worker was not maintaining place keeping in the work procedure in accordance with station guidelines. The licensee initiated CPAL032001 and CPAL032027 to document these issues.

- The corrective actions for CPAL0200292 "Main Feedwater Pump 1A Discharge Pressure Higher than Expected Following Main Feedwater Pump 1B Startup" included a corrective action to prevent recurrence to conduct a training needs analysis, and if needed, conduct training on post-maintenance testing requirements. The action was closed as completed; however, only the needs analysis was done. The training had not yet been conducted although the event had occurred in January 2002. In fact, the training was not yet developed and the effectiveness review for this root cause and corrective actions had been extended to December 2003, almost 2 years after the event occurred.

- Some recently closed CAPs reviewed were closed although the identified problem was either not successfully corrected or the problem was accepted rather than fixed. Examples included an Emergency Diesel Generator exhaust temperature indicator which had been evaluated as a repetitive problem in CAP 030334. The CAP was closed to a work order which had been completed but was not effective in correcting the problem. A second example involved Primary Coolant Pump Motor Structural Web Vibration which was documented on CAP 030444 in July 2000. The corrective action was an engineering action request to evaluate performing a modification. The engineering action request was closed with no action, essentially accepting the condition, and the CAP closed.

- The licensee did not promptly enact monitoring actions to detect further CCW system degradation following the February 2002, failure of CCW pump P-52C due to foreign material ingestion. The licensee determined that the foreign material originated from a degraded rubber seating surface for CCW valve MV-CC923, the outlet valve from the spent fuel pool heat exchangers. The licensee did not begin hourly monitoring of CCW header pressure, to identify further pump degradation, until approximately 5 days after the failure of CCW pump P-52C. Additionally, the licensee did not measure CCW cooling flow to individual engineered safeguards pumps, in order to verify that foreign material had not blocked essential CCW cooling flow to the emergency cooling system pumps, until approximately 5 weeks after the P-52C failure. The licensee did not develop a formal CCW system monitoring plan until approximately six months after the failure of P-52C. The inspectors determined that these monitoring actions were particularly important due to the inability to promptly repair MV-CC923 because the degraded condition CCW system isolation valves prevented establishment of satisfactory isolation for the valve repair.

b.3 Cross-Cutting Issues

The NRC identified a human performance cross-cutting issue in the area of engineering in November 2001 and in the area of maintenance in February 2002. Human performance as a substantive cross-cutting issue was also described in the NRC's annual assessment letter to the licensee in March 2002 and in the mid-cycle assessment letter in August 2002. A root cause analysis for the engineering human performance issue was completed in February 2002 and identified two root causes. The first root cause was that roles and responsibilities were not clearly defined, communicated and adhered to. The second root cause was that performance expectations were not clearly and effectively defined, communicated and upheld. Corrective actions were specified to clearly define roles, responsibilities and expectations, to provide training to engineers, and to implement process changes to monitor the quality of engineering products. No separate evaluation was performed for the maintenance human performance finding. However, the licensee had a site-wide human performance improvement plan which required each department to have a specific plan. In addition to the site-wide and department-specific plans, the licensee had provided a series of training seminars to improve human performance. Based on

the lack of significant human performance issues identified in this and recent inspections, it appeared that the actions taken by the licensee had been effective in reducing human performance issues.

A cross-cutting finding in corrective action was identified by the NRC in February 2002 and was also discussed as a substantive cross-cutting issue in both the NRC's annual assessment letter and mid-cycle assessment letter. In response to the identified corrective action program deficiencies, the licensee revised the program procedure to improve the process. Additional improvement initiatives were tracked by the station Excellence Plan and focused on improving the quality of evaluations and strengthening CRG and CARB. Although many of these actions were taken since the cross-cutting finding was identified, corrective action effectiveness issues continue to occur. Several additional NRC findings related to inadequate corrective action involving repeat plant problems have been identified and documented in recent inspection reports (50-255/02-02, 50-255/02-07). Also, in July 2002, Nuclear Oversight identified a finding regarding inadequate corrective action follow through as a recurrent issue. This finding was entered into the corrective action program and a root cause evaluation was completed in October 2002. The corrective actions were not yet complete at the time of the inspection.

.4 Assessment of Safety-Conscious Work Environment

a. Inspection Scope

The inspectors conducted interviews with plant staff to assess whether there were impediments to the establishment of a safety conscious work environment. During these interviews, the inspectors used Appendix 1 to Inspection Procedure 71152, "Suggested Questions for Use in Discussions with Licensee Individuals Concerning PI&R Issues," as a guide to gather information and develop insights. The inspectors also discussed the implementation of the Employee Concerns Program (ECP) with the plant's ECP Coordinator.

b. Issues

Plant staff interviewed did not express any concerns regarding the safety conscious work environment. The staff was aware of and generally familiar with the corrective action program and other plant processes including the Employee Concerns Program to raise issues.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. Cooper and other members of licensee management in an exit meeting on November 25, 2002. Licensee management acknowledged the findings presented and indicated that no proprietary information was provided to the inspectors.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

L. Bogue	Outage and Scheduling Manager
D. Cooper	Site Vice President
B. Dotson	Regulatory Analyst
P. Harden	Engineering Director
N. Haskell	Nuclear Oversight Manager
G. Hettel	Maintenance Manager
L. Lahti	Licensing Manager
D.J. Malone	Plant General Manager
B. McKenzie	Corrective Action Supervisor
G. Packard	Operations Manager
P. Russell	Performance Improvement Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-255/02-10-01	NCV	Green. Failure to adequately implement procedural requirements for the control of scaffolding in the vicinity of safety-related equipment, contrary to the requirements of TS 5.4.1, "Procedures." Specifically, the licensee failed to obtain engineering direction and approval prior to anchoring scaffolding to a safety related pipe support for CCW pump P-52B.

Closed

50-255/02-10-01	NCV	Green. Failure to adequately implement procedural requirements for the control of scaffolding in the vicinity of safety-related equipment, contrary to the requirements of TS 5.4.1, "Procedures." Specifically, the licensee failed to obtain engineering direction and approval prior to anchoring scaffolding to a safety related pipe support for CCW pump P-52B.

LIST OF ACRONYMS

EAR	Engineering Assistance Request
EOC	Extent of Condition
NFPA	National Fire Protection Association
SQUG	Seismic Qualification Utility Group
USI	Unresolved Safety Issue

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection, including documents prepared by others for the licensee. Inclusion of a document on this list does not imply that NRC inspectors reviewed the entire documents, but, rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. In addition, inclusion of a document on this list does not imply NRC acceptance of the document, unless specifically stated in the body of the inspection report.

4OA2 Identification and Resolution of Problems

Plant Procedures

EM-09-16	Engineering Manual Procedure, Heat Exchanger Condition Assessment Program	Revision 2
EPS-M-14	Permanent Maintenance Procedure, Diesel Generator 1-1- Refueling frequency Maintenance	Revision 3
EM-20	Performance Monitoring Program	Revision 9
EM-25-01	Palisades Nuclear Plant Engineering Manual Procedure	Revision 0, 1
MSM-M-43	Palisades Nuclear Plant Permanent Maintenance Procedure, Scaffolding	Revision 6
PFM-E-1	Emergency Post-Fire Repair for Appendix R Equipment	Revision 4
I-SC-88-022-1	Component Cooling Water Flow Balance for P-54A, P-54B and P-54C	Revision 5
Procedure 1.09	Self-Assessment Program	Revision 13
Procedure 5.09	Maintenance Cleanliness Standards	Revision 7
Procedure 10.41	Administrative Procedure, Procedure Initiation and Revision	Revision 34
Procedure 3.30	Palisades Nuclear Plant Administrative Corrective Action Process	Revision 28, 29
Procedure 5.19	Palisades Nuclear Plant Administrative Procedure Post Maintenance Testing	Revision 11
Procedure 5.30	Palisades Nuclear Plant Administrative Procedure, Rework Maintenance Procedure	Revision 1

Procedure QO-20	Inservice Test Procedure - Low Pressure Safety Injection Pumps	Revision 12
Procedure T-223	Component Cooling Water Flow Verification	Revision 12

Miscellaneous Documents

Scaffold Request Form #02-00316	November 4, 2002
Quality Program Description for nuclear Power Plants - Palisades Nuclear Power Plant	Revision 21
Component Cooling Water Monitoring Plan for Debris Due to Potential Further Degradation of MV-CC923, “Spent Fuel Cooling Heat exchanger Outlet Valve”	August 29, 2002
Equipment Reliability Watch List	November 4, 2002
Shift Turnover Review Sheet	Revision 1
Operations Department Focused Self Assessment - Plant Status Control	February 2002
Mechanical Pump Seal Training - Training Needs Assessment	March 30, 2000
Palisades Assessment Plan	October 18, 2002
Palisades Off-Site Review Committee Meeting 2002-02 Chairman’s Report	August 21, 2002
List of Mechanical Seal Problems; January 1997 - November 2002	
List of Degraded and Nonconforming Conditions	October 22, 2002
Underwriter Laboratories Inc. Memo; File NC4809, Project 02NK20855	October 16, 2002
SDR-99-1205; EA-CCW-87-01 Spent Fuel Pool Heat Load and Required Spent Fuel Pool Heat Exchanger Component Cooling Water Flow During a Design Basis Accident (10CFR50.59 Safety Review)	November 15, 1999
SDR-99-1506; Revise Final Safety Analysis Report Table 1-2 and Table 9-7 to Include the Volume of Empty Spent Fuel Pool Cavity and Volume Empty North Tilt Pit Cavity (10CFR50.59 Safety Review)	November 12, 1999

	EA-SC-94-090-02; Spent Fuel Pool Time to Boil Following a Loss of Cooling	Revision 2
	Palisades Nuclear Plant Root Cause Evaluation for CPAL-01-0251, CPAL-01-0252, and CPAL-01-0253 “Condition Report Evaluation Maintenance Rule Refueling Periodic Assessment Observations”	July 5, 2001
	List of Degraded Equipment Associated With Caution Tags	November 5, 2002
	TM-2000-022; Installation of Ultrasonic Flow Meter on Component Cooling Water to P-54A Containment Spray Pumps	June 20, 2000
	VTD-2241-0001; File Number M0008 0033; Graham Vacuum& Heat Transfer Installation, Operation, and Maintenance Instructions for Heat Exchangers;	Revision 1
	VTD-0271-0018; File Number M0008 0010; Ingersoll-Rand Co Instructions for Installation, Operation and Maintenance of Overhung Process Pumps	Revision B
	Palisades National Fire Protection Association Code Compliance Review	July 16, 2002
	List of Changes and Response to Appendix A to Branch Technical Position APCSB 9.5-1 and Regulatory guide 1.78 and 1.101	August 24, 1996
	Human Performance Improvement Plan	
	Palisades Excellence Plan	
EAR-1997-0695	Evaluate CCW Differential Pressure Limits Across Component Cooling Water Heat Exchangers	November 13, 1997
EAR-1998-0467	Approve te Tube Plugging Limit of the Component Cooling Water Heat Exchangers up to the Limit Specified in the Latest LOCA Analysis	June 29, 1999
EAR-1999-0238	Identify and Evaluate the Use of an Improved Mechanical Seal for P-67A and P-67B	September 23, 1999
EAR-1999-0337	Remove Check Valve Internals From CK-SW07, CK-SW08, and CK-SW409	June 8, 2000

EAR-2000-0401	Containment Spray Pump (P-54A) Temporary Modification For Seal Cooling Flow Rate	June 20, 2000
EAR-2000-0143	CCW Flow Balance Between Primary Coolant Pump Motor Bearing and Primary Coolant Pump Seals	February 29, 2000
Nuclear Oversight Assessment 2002-001-8	Nuclear Oversight 1st Quarter 2002 Assessment Report for Palisades	
Nuclear Oversight Assessment 2001-004-8	Fourth Quarter 2001 Nuclear Oversight Assessment of the Palisades Plant	February 18, 2002
Nuclear Oversight Assessment 2002-002-8	Nuclear Oversight 2nd Quarter 2002 Assessment Report for Palisades	
Nuclear Oversight Assessment 2002-003-8	Nuclear Oversight 3rd Quarter 2002 Assessment Report for Palisades	November 19, 2002
Work Order 24212951	Perform selected portions of refueling outage frequency maintenance on diesel generator 1-1	
Work Request 288338	Service Water Pump	
Work Request 292769	Perform characterization testing on P-52B motor, EMA-1208 and replace motor	

Condition Reports

CA015154	Complete EAR 2000-0345 to Establish Alternate Safe Shut down Path for Safety Qualification Utility Group (SQUG)	February 27, 2001
CA016468	Explore the Various Options Available for Resolving the A-46 Outlier Issue Associated With the Seismic Adequacy of the Safety Injection and Refueling Water Tank	May 2, 2000
CA017521	Evaluate the need to change the service coordinator responsibilities to include reviewing vendor work instructions or procedures for adequacy	November 20, 2002
CAP000017	OE 11420 HPSI pump bearing experienced a leak of oil due to inability to drain from oil bubbler	September 25, 2002

CAP029056	Maintenance Rule Refueling Periodic Assessment Observation - Adverse Trend in Resolution of Category (A)(1) Issues	January 24, 2001
CAP029070	T-388 (CV-0824 D/P test) suspended due to difficulties with CV-0824 and CV-0847	April 19, 2001
CAP029142	Recommended Inspection/Repair of Traveling Screens in Summer 2001 Not Performed	December 7, 2001
CAP029523	EDG 1-1 Shutdown during TS surveillance test MO-7A-1 due to leaking petcock on cylinder 7R	July 6, 2002
CAP029678	Heat exchanger performance monitoring issue not documented by condition report	
CAP029749	Component Cooling Water System Maintenance Rule Category (a)(1) action plan	July 24, 2002
CAP029842	CCW pump P-52B rotating element assembled incorrectly	July 31, 2002
CAP029856	Concrete Cracking on E-9C Supports	May 6, 1999
CAP029920	Component CV-5426 Valve Failed PMT	June 10, 2002
CAP029941	Elevated Pump Seal Leakage on Main Feedwater Pump P-1A	June 17, 2000
CAP029945	Removed Feedwater Pump P-1A From Service Due to Degraded Inboard Pump Seal	March 11, 2000
CAP030041	NRC Residents Identified Human Performance as a Cross-Cutting Issue and Assigned a No Color Finding	February 8, 2002
CAP030073	Labels Missing Off Various Auxiliary Building Components and Equipment	May 21, 2002
CAP030334	Repeat Failure of 1-1Emergency Diesel Generator Cylinder 2R Exhaust Temperature Indicator	June 8, 2002
CAP030377	Insulation on Condensate Tank Level Sensing Lines Not Installed in a Timely Fashion	December 12, 2001
CAP030400	Inappropriate Result From the Analysis in Support of an Assigned Corrective Action	March 29, 2002
CAP030456	Unsafe Access to Emergency Lighting Units	June 23, 2000

CAP030444	Resonance of the Vertical Structural Members that are Part of the PCP Motor Backstop Assembly Contributes to Oil Leaks	July 17, 2000
CAP030770	The Limitations of a Fire Watch During Times When Actual Hot Work is Not Taking Place is Unclear	July 17, 2000
CAP030790	Pump P-10B Disassembly following Mechanical Seal Failure - Inconsistencies Noted	May 5, 2001
CAP030823	Spurious Control Room Alarm EK-0736, “Boric Acid Critical Heat Trace System Trouble”	May 5, 2000
CAP030829	Drop in P-10A, Heater Drain Pump Amps With Flow Dropping to Zero	May 11, 2001
CAP031405	Unexplained rise in containment gas monitor RIA-1817 counts	September 25, 2002
CAP031655	National Fire Protection Association (NFPA) Fire Code Concern Regarding a Sprinkler Head in the Electrical Equipment Room 725	October 14, 2002
CAP031703	Service Water Pump P-7A Packing Leakage	October 16, 2002
CAP031752	Service Water Pump P-7AShaft Appears Not to Have Been Changed to Stainless	October 21, 2002
CAP031939	Scaffold erection begun without full authorization	November 4, 2002
CAP031961	NRC identified that scaffold in component cooling water system room was improperly restrained	November 5, 2002
CAP032007	NRC identified inconsistent application of procedural trending requirements	November 7, 2002
CAP032010	Scaffold in electrical equipment room not built to seismic requirements	November 7, 2002
CAP032012	Scaffold in auxiliary feed water pump room not built to seismic requirements	November 7, 2002
CAP032013	Scaffold in 1-D switchgear room not left in a seismically secured condition	November 7, 2002
CAP032032	NRC identified that characterization testing data on old P-52B was missing from archived work package	November 7, 2002
CAP032053	NRC identified that ladders were improperly stored in the west safeguards room	November 8, 2002

CAP032054	NRC identified that in progress scaffold erection in the 1-D switchgear room was not adequately braced	November 8, 2002
CAP032145	NRC identified that deficient procedure was not segregated to prevent use until corrections can be made	November 18, 2002
CAP032153	NRC identified that scaffold was in contact with safety-related piping for the control room emergency ventilation system	November 18, 2002
CAP032179	Inadequate Evaluation of Heat Exchanger Condition	November 20, 2002
CAP032158	NRC identified that the acceptance criteria for containment air cooler inspections was not revised to reflect increased inspection frequency	November 19, 2002
CAP032179	Inadequate Evaluation of Heat Exchanger Condition	November 20, 2002
CAP032186	Insight Regarding Floor Coating/Fire Hazard Analysis Generic Issue	November 20, 2002
CAP032211	Failure to Perform an Adequate “Apparent Cause Evaluation”	November 21, 2002
CAP032212	NRC identified that an action request was not initiated for a condition adverse to quality documented on Procedure Change Request 21030	November 21, 2002
CAP032213	NRC identified failure to adequately evaluate OE 14230 - plastic tubing fails during check valve testing	November 21, 2002
CIED0100227	SER 00-007 - BWR core power oscillations	January 22, 2001
CIED0103143	SEN-222 - Emergency Diesel fuel oil storage tank water intrusion	October 1, 2001
CIED0103288	SEN 223 - Debris in essential service water system results in low cooling flow to emergency diesel generators	October 15, 2001
CIED0103639	SEN 224 - Recurring event, inadvertent reactor vessel inventory reduction during RHR cross tie line flushing	November 14, 2001
CIED0104029	SEN 227 - Improper fuel reloading results in the incorrect locations for 113 fuel assemblies	December 18, 2001

CIED0200225	SER 1-02: Intake structure blockage results in multi-unit transients and potential loss of heat sink	January 14, 2002
CIED0200454	IN 02-05: foreign material in standby liquid control storage tanks	February 1, 2002
CIED0201019	IN 02-10: non conservative water level setpoints on steam generators	April 13, 2002
CPAL0000151	Diesel Generator Room Temperature Below System Operating Procedure Requirement	January 17, 2000
CPAL0000320	Safety Injection and Refueling Water Tank Calculated Stresses Exceed Allowables Under Unresolved Safety Issue (USI) A-46 Criteria	February 1, 2000
CPAL0100335	Some Maintenance Workers Unwilling to Report Injuries	October 17, 2001
CPAL0100457	Less Than Required Component Cooling Water Cooling Flow For Containment Spray P-54B	February 9, 2001
CPAL0100764	Performance of Containment Sump Check Valves During Post-Design Basis Accident Recirculation Mode May Not be Acceptable	February 9, 2001
CPAL0101551	NRC identified that EPRI personnel performed single tube testing on CCW heat exchanger E-54A without an approved procedure	April 11, 2001
CPAL0101826	Component Cooling Water Flow Rate to Spray Pump Seal Heat Exchanger Found Below Minimum Expected Value	May 5, 2001
CPAL0102497	Cordless Drill for Backup Motor Operated Disconnect Operation Not Adapted to the Modification	July 24, 2001
CPAL0102826	Weaknesses in Condition Report Evaluations and Corrective Actions	August 29, 2001
CPAL0103100	Rotating Equipment Issues	September 26, 2001
CPAL0103309	Potential Green Finding from Problem Identification and Resolution Inspection	October 16, 2001
CPAL0103310	Potential Green Finding from Problem Identification and Resolution Inspection	October 16, 2001
CPAL0103307	Potential Green Finding form Problem Identification and Resolution Inspection	October 16, 2001

CPAL0103678	Lab Procedures Not Included in AP 10.41 “Procedure Initiation and Revision” as Requiring Periodic Reviews	November 19, 2001
CPAL0103797	NRC Inspector Identified Potential Weaknesses in Engineering	November 30, 2001
CPAL0103934	Insulation on Condensate Tank Level Sensing Lines Not Installed in a Timely Fashion	December 6, 2001
CPAL0200101	Entered ONP-6.2, “Loss of Component Cooling Water,” while restoring P-50B lube oil coolers	January 7, 2002
CPAL020014	Component cooling water P-52C breaker tripped open on time overcurrent	January 2, 2002
CPAL0200292	Main Feedwater Pump 1A Discharge Pressure Higher Than Expected Following Main Feedwater Pump 1B Startup	January 17, 2002
CPAL0200344	Equipment Control Processes/Practices Assessment Needed	January 23, 2002
CPAL0200447	Final Results of Completing Surveillance Procedure FPSP-AE-4, Emergency Lighting Unit Battery Conductance and Discharge Test	February 1, 2002
CPAL0200526	Component cooling water pump P-52C failed TS surveillance QO-15C	February 7, 2002
CPAL0200580	LCO action time challenged due to implementation of emergent corrective maintenance	February 12, 2002
CPAL0200586	Ineffective Corrective Actions for Action Follow-up Item (or 2-1) on Not Establishing and Reinforcing High Standards	February 13, 2002
CPAL0200601	Fire Main Break at “A” Cooling Tower Results in all Fire Pumps Starting	February 14, 2002
CPAL0200620	Effectiveness of Corrective Actions Generated from C/Rs Needs Improvement	February 15, 2002
CPAL0200624	Incomplete Corrective Actions for P-10A/B Failure	March 6, 2002
CPAL0200702	Attempts to disassemble MV-CC923 aborted; restoration identifies new condition	February 20, 2002

CPAL0200756	Potential Containment Spray Pump Component Cooling Water Flow Rate Anomalies Recorded During 2001 Performance of Special Test T-223	February 21, 2002
CPAL0201025	Component Cooling Water Flow Rates to Containment Spray Pump P-54CBelow Expected Value	March 13, 2002
CPAL0201099	Non-conservative Logarithmic Plotting Error in Excel Graphs in Three Engineering Analyses Which Effect Containment Response Calculations	March 19, 2002
CPAL0201160	Diesel Generator Corridor Fire Door Frames are Not in Compliance With Our 1978 Safety Evaluation Report Licensing Basis	March 21, 2002
CPAL 0201343	Untimely Implementation of Actions to Repair High Pressure Air Check Valve	April 5, 2002
CPAL0201619	Difficulties obtaining extent-of-condition data on CCW pump P-52B	April 24, 2002
CPAL0201838	Inspection of Spare Auxiliary Feed Water Motor Deficiencies Found	May 8, 2002
CPAL0202351	Dispersed contamination in east engineering safeguards	June 18, 2002
CPAL0202517	Plant Oversight of Non-Station Workers Lacks Rigor	August 21, 2002
CPAL032007	NRC identified that expectation for use of Maintenance shift turnover sheet was not properly understood by department supervisors	November 7, 2002
CPAL032027	NRC identified that Maintenance department procedural place keeping expectation were not met	November 7, 2002