

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/95002(DRP)

Docket No. 50-255

License No. DPR-20

Licensee: Consumers Power Company
212 West Michigan Avenue
Jackson, MI 49201

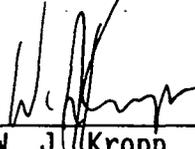
Facility Name: Palisades Nuclear Generating Facility

Inspection At: Palisades Site, Covert, Michigan

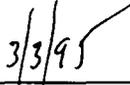
Inspection Conducted: January 7 through February 21, 1995

Inspectors: M. E. Parker D. G. Passehl
 N. Jackiw R. Hague
 K. Salehi

Approved By:



W. J. Kropp, Chief
Reactor Projects Section 2A



Date

Inspection Summary

Inspection from January 7 through February 21, 1995
(Report No. 50-255/95002(DRP))

Areas Inspected: Routine, unannounced safety inspection by resident and regional inspectors of action on previous inspection findings, operational safety verification, engineered safety featured systems, onsite event followup, current material condition, housekeeping and plant cleanliness, cold weather preparations, radiological controls, security, safety assessment/quality verification, maintenance activities, surveillance activities, engineering and technical support, Temporary Instruction TI 2515/123 - Implementation of 10 CFR Part 20, and report review.

Results: Within the 15 areas inspected, no violations, deviations, or inspection followup items were identified in 14 areas. One violation was identified (paragraph 5.a) in the remaining area for failing to implement the independent verification process as required. Based upon this inspection, TI-2515/123 is closed. The following is a summary of the licensee's performance during this inspection period:

Plant Operations

The licensee's performance in this area was adequate.

The plant operated at full power for most of the inspection period.

On February 11, 1995, plant operators lowered reactor power to 48 percent when one of two cooling tower pumps tripped. Overall, the plant responded very well with feedwater control and the turbine control systems functioning appropriately during the power reduction. The plant was returned to full power following repairs.

On January 17, 1995, the licensee discovered that some members of the plant's fire brigade had lapsed pulmonary function tests. The licensee later found that the pulmonary function test was a self-imposed administrative requirement, and not a regulatory requirement. The inspectors agreed, but expressed concern since there were other examples where the licensee had not performed an adequate job of tracking medical certification due dates for plant operators.

The licensee initiated several condition reports this inspection period related to control of plant procedures and control of plant drawings. The licensee attributed the problem to difficulties while transitioning to new computer software. The licensee has taken aggressive action to review other procedures and drawings that could have been affected during the transition.

The inspectors identified some material condition deficiencies. One concerned the state of the plant's radiation process monitors. The licensee experienced problems in maintaining various radiation monitors and related instrumentation in an operable status.

The inspectors reviewed the licensee's cold weather protective measures program and implementation. The program was adequately implemented ensuring that safety-related systems are protected against cold weather. The program consists of two operating checklists - CL-CWCL-1, "Cold Weather Checklist," and CL-CWCL-2, "Cold Weather Checklist (Electrical)." The inspectors conducted walkdowns of portions of both checklists and had no major concerns.

The inspectors had one observation concerning level indication for the Condensate Storage Tank T-2. On February 11, 1995, plant operators lost level indication on one of two level indicators for T-2. The licensee determined the cause to be due to severe cold weather. Plant workers covered the associated level transmitter (LT-2021) with insulation and indication returned to normal. Neither of the two level transmitters (LT-2021 or LT-2022) were on the cold weather checklist. Under some scenarios, the EOPs require operators to calculate T-2 inventory based on level indication. The licensee initiated a condition report.

Safety Assessment/Quality Verification

The licensee's performance in this area was adequate.

Consumers Power Company's Management and Safety Review Committee (MSRC) for the Big Rock Point and Palisades nuclear plants met at the Palisades plant. On January 31, 1995, the subcommittee members toured the plant, attended daily meetings, and interviewed several members of the plant staff. On February 1, 1995, the inspectors attended the full committee meeting. The inspectors noted full participation by both the Big Rock Point and Palisades plant staff, also senior corporate management participated as members of the MSRC.

The inspectors reviewed audit PA-94-003, "Palisades Health Physics and Radwaste Shipping". Although the audit contained several good findings, it was not performance based. The inspectors reviewed surveillance report NPAD/P-93-029, "Palisades Outage Radworker Practices". This surveillance was performance based; however, it did not provide many details nor specify formal action items for deficiencies that should have required licensee followup and close-out. The licensee stated that the format of audits and surveillances were in the process of being changed and future audits would be more performance based and future surveillances would require more formal closure of findings.

Overall, the licensee continues to make progress in their self assessment and corrective programs. In general, the licensee's Nuclear Performance Assessment Department (NPAD) appears to be conducting effective assessment audits. In an effort to continue improvements in the area of root cause evaluations, the licensee has recently contracted with a management consulting company to provide an improved root cause evaluation system and plant operators.

Maintenance and Surveillance

The licensee's performance in this area was adequate; however, a violation was issued for failing to properly implement independent verification while installing a personal computer to record main generator output data. This resulted in a false indication of a reactor trip that caused a challenge to the reactor protective system.

Surveillance testing was performed acceptably.

Engineering and Technical Support

The licensee's performance in this area was adequate.

On February 8, 1995, Consumers Power Company announced the organizational realignment of several Engineering Department managers to support key plant initiatives. The most significant was the appointment of a manager to handle a reactor vessel annealing project. The other changes were mainly realignment in engineering management to support this effort.

The inspectors observed fuel loading of multi-assembly sealed basket (MSB) #10. Access control and radiological controls were very good during all phases observed. Dry Fuel loading activities are scheduled to be accomplished over the next three months with completion scheduled before the upcoming refueling outage in May 1995.

On January 14, 1995, the licensee completed blackness testing which was performed to determine the extent of Boraflex degradation in Westinghouse fuel racks in the spent fuel pool. Blackness testing was performed on 31 selected fuel storage cells in the spent fuel pool. The preliminary results of the test data did not indicate significant degradation or removal of Boraflex in the sides of the fuel cells tested. Detailed analysis of the test data correlating gap width with the test data is scheduled to be released in the near future by Holtec International, a contractor who performed the work. The licensee observed the test process, performed the necessary fuel transfers, and moved the contractor's special housing assembly containing the neutron source for this test. The test was conducted satisfactorily.

Plant Support

The licensee's performance in this area was adequate.

The inspectors reviewed the radiological survey sheets for Ventilated Storage Cask number 10 and found no problems. The inspectors observed that radiological housekeeping was very good in general plant areas and in areas where maintenance was in progress.

Since reaching equilibrium, dose equivalent iodine (DEI) has increased steadily and stabilized at around 6.9 percent of Technical Specification limits ($1 \mu\text{Ci/ml}$). During the rapid down power evolution that occurred on February 11, 1995, DEI was noted to have decreased slightly following the power reduction and did not exhibit the classical symptoms, i.e. a significant increase in levels. The licensee along with their consultants are continuing to monitor and evaluate the primary coolant system activity levels.

The inspectors reviewed the licensee's implementation of the revised 10 CFR Part 20 regulations. The licensee implemented the revised Part 20 on January 1, 1993. Licensee procedures and controls were implemented which met the requirements of the January 1, 1994, revision to 10 CFR Part 20.

DETAILS

1. Persons Contacted

Consumers Power Company

R. A. Fenech, Vice President, Nuclear Operations
*T. J. Palmisano, Plant General Manager
K. P. Powers, Plant Engineering and Modifications Manager
R. M. Swanson, Director, NPAD
D. W. Rogers, Operations Manager
*D. P. Fadel, NECO Engineering Program Manager
*J. P. Pomaranski, Deputy Maintenance Manager
*H. L. Linsinbigler, Project Management and Modifications Manager
*S. Y. Wawro, Outage and Planning Manager
*K. M. Haas, Safety & Licensing Director
R. B. Kasper, Maintenance Manager
*R. C. Miller, Deputy Plant Engineering and Modifications Manager
*C. R. Ritt, Administrative Manager
*R. M. Rice, System Engineering Manager
*M. P. Knopp, Chemistry Superintendent
D. G. Malone, Shift Operations Superintendent
*D. J. Malone, Radiological Services Manager
*R. A. Vincent, Licensing Administrator

Nuclear Regulatory Commission

*M. E. Parker, Senior Resident Inspector
*D. G. Passehl, Resident Inspector
N. Jackiw, Project Engineer, Region III
R. Hague, Radiological Controls Inspector, Region III
K. Salehi, Engineering Inspector, Region III

* Denotes those attending the exit interview conducted on February 21, 1995.

The inspectors also had discussions with other licensee employees, including members of the technical and engineering staffs, reactor and auxiliary operators, shift engineers and electrical, mechanical and instrument maintenance personnel, and contract security personnel.

2. Action on Previous Inspection Findings (92901, 92902, 92903, 92904)

- a. (Closed) Violation 50-255/91006-03(DRSS): Violation for failure to control vendor manuals that addressed portable survey instrumentation. At the time of the identified violation, the licensee's administrative procedures required all vendor manuals to be controlled. Subsequently, Administrative Procedure (AP) 10.45, "Vendor Manual Control", was revised and renumbered as AP 9.45 to describe its proper applicability to installed equipment and instrumentation only. This item is closed.

- b. (Closed) Violation (50-255/93016-01(DRP)): Contrary to procedure, the shift supervisor failed to explain plans, procedures, and safety precautions to the auxiliary operators assigned to uncouple control rod drive mechanisms during the last refueling outage. The licensee instituted a pre-job briefing checklist that is required to be discussed with operators by management. The checklist includes appropriate plans, procedures, and safety precautions. The prejob briefing is required for all crew members involved with the uncoupling activity. The inspectors observed several instances when the prejob briefing checklist was used after this event occurred. The inspectors were satisfied that the checklist addressed important attributes for prejob briefings. Also, the plant manager issued a June 24, 1993, memo to all site supervisory personnel discussing consequences and lessons learned from this event. The memo emphasized the need to effectively coordinate activities, procedure usage, proper communications, and proper documentation. This item is closed.
- c. (Closed) Violation (50-255/93016-02(DRP)): Contrary to procedure, auxiliary operators uncoupling control rod drive mechanisms had not completed a dry run of the evolution using the control rod drive mechanism mock-up. The licensee initiated a procedure revision to CRDO-1, "Disconnecting Control Rods From CRDMS," Rev.9. Procedure CRDO-1 requires that nuclear control operators and auxiliary operators performing the uncoupling evolution complete a dry run consisting of uncoupling control rods at the disconnecting mockup within one week prior to the actual uncoupling evolution. This item is closed.
- d. (Closed) Violation (50-255/93016-03(DRP)): Contrary to procedure, plant operators repeatedly failed to notify the control room after uncoupling individual control rod drive mechanisms. The primary purpose of this step was for operators to raise and mechanically lock each control rod drive mechanism after it was uncoupled. The licensee revised procedure CRDO-1, "Disconnecting Control Rods From CRDMS," Rev.9, to allow operators to raise and mechanically lock the control rod drive mechanisms as a group, instead of individually. The revised procedure is intended to reduce personnel exposure, as well as making it easier for operators to spot an uncoupled control rod. The revised procedure should ensure that control rods are properly uncoupled. This item is closed.
- e. (Closed) Violation (50-255/93016-04(DRP)): Contrary to procedure, the licensee failed to retain the working copy of the control rod drive mechanism uncoupling procedure. The inspectors concurred with the licensee that this was an isolated case. The inspectors reviewed the licensee's control of essential documents and identified no other cases of missing essential documents. This item is closed.

3. Plant Operations (71707, 71714, 71750, 93702)

The plant operated at full power for most of the inspection period. On February 11, 1995, plant operators lowered reactor power to 48 percent when one of two cooling tower pumps tripped. On February 12, 1995, following the necessary repairs, plant operators returned the plant to full power.

a. Operational Safety Verification (71707)

The inspectors verified that the facility was being operated in conformance with the license and regulatory requirements and that the licensee's management control system was effective in ensuring safe operation of the plant. On a sampling basis, the inspectors verified proper control room staffing and coordination of plant activities; verified operator adherence with procedures and technical specifications; monitored control room indications for abnormalities; verified that electrical power was available; and observed the frequency of plant and control room visits by station management. The inspectors reviewed applicable logs and conducted discussions with control room operators throughout the inspection period. The inspectors observed a number of control room shift turnovers. The turnovers were conducted in a professional manner and included log reviews, panel walkdowns, discussions of maintenance and surveillance activities in progress or planned, and associated Limiting Condition for Operation time restraints, as applicable.

- 1) On January 17, 1995, the licensee discovered that some members of the plant's fire brigade had lapsed pulmonary function tests. All members had satisfactorily passed the annual physical examinations within the past year. However, the licensee considered passing the annual pulmonary function test as a separate fire protection requirement, in addition to the physical examinations.

On January 17, 1995, the shift supervisor (SS) on "C" shift found that four of five non-licensed auxiliary operators (AOs) on his particular shift had expired pulmonary function tests. Therefore, the SS concluded that only one of five AOs was qualified to be a fire brigade member.

The SS sent the three AOs, one at a time, offsite to a medical facility to obtain the pulmonary test. All three individuals passed the pulmonary function test. Concurrently, the licensee assigned three security guards with satisfactory pulmonary test results to the fire brigade. Approximately two and a half hours elapsed until all three AOs were tested (satisfactorily) and returned to the site.

The licensee subsequently performed a more in-depth review

of certification requirements for members of the fire brigade. The licensee identified that the pulmonary function test was a self-imposed administrative requirement, and not a regulatory requirement.

The inspectors agreed and found that the licensee was in full compliance with regulatory requirements. However, the inspectors expressed concern, citing several recent examples, where the licensee had not performed an adequate job of tracking medical certification due dates for licensed operators. This was of particular concern, as other examples involved incomplete medical examinations required for licensed plant operators. The inspectors will continue to follow the licensee's actions on this issue.

2) The licensee experienced several problems with inadequate control of plant procedures and drawings and initiated condition reports to address these deficiencies. Some examples were:

- Technical Specification surveillance procedure QO-16, "Inservice Test Procedure - Containment Spray Pumps," was issued with missing steps;
- Technical Specification surveillance procedure QO-1, "Safety Injection System," was issued with an expired temporary change to the procedure still attached;
- Technical Specification surveillance procedure QO-5, "Valve Test Procedure (Includes Containment Isolation Valves)", was found with missing steps;
- Operations procedure GOP-5, "Power Escalation After Synchronization," was found with an expired temporary change still attached;
- Drawings were issued for four safety-related inverters (ED-06, 07, 08 and 09) with labelling and other errors.

The licensee identified and corrected the above procedure deficiencies prior to use by the plant staff. Therefore, no operability concerns were identified. Also, the licensee initiated action to correct the inverter drawings and suspended work until the drawings were corrected. The licensee attributed the problem to difficulties while transitioning to new computer software. The licensee has taken aggressive action to review other procedures and drawings that could have been affected during the transition. The inspectors will continue to follow the licensee's actions on this issue.

b. Engineered Safety Feature (ESF) Systems (71707)

During the inspection period, the inspectors selected accessible portions of several ESF systems to verify status. Consideration was given to the plant mode, applicable Technical Specifications, Limiting Conditions for Operation requirements, and other applicable requirements.

Various observations, where applicable, were made of hangers and supports; housekeeping; whether freeze protection, if required, was installed and operational; valve position and conditions; potential ignition sources; major component labeling, lubrication, cooling, etc.; whether instrumentation was properly installed and functioning and significant process parameter values were consistent with expected values; whether instrumentation was calibrated; whether necessary support systems were operational; and whether locally and remotely indicated breaker and valve positions agreed. During the inspection, the accessible portions of the Emergency Diesel Generator Train A was walked down.

c. Onsite Event Follow-up (93702)

During the inspection period, the licensee experienced one non-reportable event. The inspectors pursued the events onsite with the licensee and other NRC officials. The inspectors verified that the licensee initiated prompt and appropriate actions. The specific event was as follows:

On February 11, 1995 the "A" cooling tower pump (P-39A) tripped while the plant was on line at 99.6 percent power. Operators immediately initiated an emergency power reduction. The power reduction was initiated to reduce reactor power and turbine power to maintain turbine back pressure and condenser vacuum within limits. Reactor power was reduced to approximately 48 percent within 13 minutes of the pump trip. Condenser vacuum did not drop below 25" of vacuum during the down power evolution. In reviewing the event, the inspectors noted that the operating crew did an excellent job of coordinating activities and reducing reactor power in a timely manner. The plant performed remarkable well with only minor deficiencies noted. Control rod Number 39 was noted to have lagged the remainder of Group 4 during the rod insertion; however, operators were able to adjust the rod to clear the 4" deviation alarm. Also some cooling tower freezing was noted along with two tower motor operator valves that froze up. Overall, the plant responded very well with feedwater control and the turbine control systems functioning appropriately during the power reduction.

During subsequent followup troubleshooting, systems and reactor engineering provided immediate support to the operating shift and responded to the site within 50 minutes of the pump trip. Initial troubleshooting by system engineering and I & C technicians

identified the cause of the pump trip to be a faulty flow switch (FS-5356A) which measures cooling water flow to the pump seal lube oil. Seal cooling water was not affected and was maintained at approximately 35 gpm. The flow switch was replaced under a functional equivalent substitution (FES) change that upgraded the switch. The licensee took the opportunity to replace the flow switches for both the P-39A and P39B cooling tower pumps, prior to returning to full power. The inspectors reviewed the post event report, observed plant conditions and observed control room activities during the power escalation.

In reviewing the flow switch failure, the inspectors noted that deficiency report D-PAL-92-013G was initiated following a prior cooling tower pump trip on January 25, 1992. At that time the licensee recognized the particular vulnerability with the flow switch and initiated measures to modify the flow switch replacing the brass paddle with a stainless steel paddle. FES-93-071 was initiated along with appropriate work orders to implement the FES during the next refueling outage. However, the work order was not performed during the 1993 refueling outage but had been scheduled for implementation during the 1995 refueling outage.

d. Current Material Condition (71707)

The inspectors performed general plant as well as selected system and component walkdowns to assess the general and specific material condition of the plant, to verify that work requests had been initiated for identified equipment problems, and to evaluate housekeeping. Walkdowns included an assessment of the buildings, components, and systems for proper identification and tagging, accessibility, fire and security door integrity, scaffolding, radiological controls, and any unusual conditions. Unusual conditions included but were not limited to water, oil, or other liquids on the floor or equipment; indications of leakage through ceiling, walls, or floors; loose insulation; corrosion; excessive noise; unusual temperatures; and abnormal ventilation and lighting.

Overall material condition was adequate. The inspectors identified some material condition deficiencies that were discussed with the licensee.

One material condition deficiency concerned the state of the plant's process radiation monitors. The licensee has been experiencing problems in maintaining various radiation monitors and related instrumentation in an operable status. For example:

- On February 17, 1995, Waste Gas Holdup System Noble Gas Activity Monitor RIA-1113 tripped to prevent a planned release of Waste Gas Holdup Tank T-101C. There was no apparent reason for the trip.

- On February 15, 1995, West Engineered Safeguards Room Vent System Noble Gas Activity Monitor RIA-1811 was declared inoperable due to a circuit failure which caused sporadic alarms.
- On February 1, 1995, Failed Fuel Monitor RIA-0202A was declared inoperable because of a failed calibration check.
- On January 21, 1995, Containment Ventilation System Area Monitor RIA-1817 was declared inoperable because of a failed source check.
- On October 7, 1994, Waste Gas Flow Monitor FI-1121 was declared inoperable because it was considered unreliable and in need of replacement.

The licensee initiated work orders to make the necessary repairs. However, the extended amount of time that the equipment has been out of service has resulted in operators and radiation protection personnel implementing compensatory measures to monitor the affected parameters. The inspectors will continue to follow the licensee actions on this issue.

e. Housekeeping and Plant Cleanliness (71707)

The inspectors monitored the status of housekeeping and plant cleanliness for fire protection and protection of safety-related equipment from intrusion of foreign matter. No significant concerns were identified this inspection period. However, some plant areas warrant increased attention to maintain cleanliness. One example noted this report period was the auxiliary feedwater pump room.

f. Cold Weather Preparations (71714)

The inspectors reviewed the licensee's cold weather protective measures program. The program was adequately implemented ensuring that safety-related systems are protected against cold weather. The program consists of two operating checklists - CL-CWCL-1, "Cold Weather Checklist," and CL-CWCL-2, "Cold Weather Checklist (Electrical)."

In addition, the inspectors observed that plant operators routinely monitor various plant equipment for adverse cold weather effects. The operators accomplish this by use of other plant procedures and by auxiliary operator log sheets.

The inspectors observed that the checklists had a lot of pen and ink annotations to reference various pieces of equipment that were tagged out. This presented a difficulty to plant operators in tracking the status of the various equipment to ensure that proper

cold weather preparations were implemented upon return to service of that equipment.

The inspectors had one observation concerning equipment that became affected by cold weather this inspection period. The licensee experienced a problem with level indication for the Condensate Storage Tank T-2. On February 11, 1995, plant operators lost level indication on one of two level indicators for T-2. The licensee determined the cause to be due to severe cold weather. Plant workers covered the associated level transmitter (LT-2021) with insulation and indication returned to normal. Neither of the two level transmitters (LT-2021 or LT-2022) were on the cold weather checklist.

The inspectors expressed concern that the level transmitters could be inoperable when T-2 level indication is needed during performance of certain Emergency Operating Procedures (EOPs). Under some scenarios, such as during a reactor trip recovery, the EOPs call for use of a "Primary Coolant System Cooldown Strategy." The strategy describes how to calculate T-2 inventory based on level indication.

The licensee initiated a condition report to evaluate the adequacy of the existing heat tracing for the T-2 level transmitters.

g. Radiological Controls (71750)

The inspectors verified that personnel were following health physics procedures for dosimetry, protective clothing, frisking, posting, etc., and randomly examined radiation protection instrumentation for use, operability, and calibration. The inspectors also reviewed the radiological survey sheets for Ventilated Storage Cask number 10 and found no problems.

During routine plant tours the inspectors observed that radiological housekeeping was very good in general plant areas and in areas where maintenance was in progress. On one tour, accompanied by the Radiological Services Superintendent, the inspectors were shown actions completed and in progress to address potentially accessible pipe runs which may be transient high radiation areas. The licensee's actions should resolve the longstanding issue over appropriate posting for these areas.

Since reaching equilibrium, dose equivalent iodine (DEI) has increased steadily and stabilized at around 6.9 percent of Technical Specification limit (1 $\mu\text{Ci/ml}$). During the rapid down power evolution that occurred on February 11, 1995, DEI was noted to have decreased slightly following the power reduction and did not exhibit the classical symptoms, i.e. a significant increase in levels. The licensee along with their consultants are continuing to monitor and evaluate the primary coolant system activity levels.

h. Security (71750)

Each week during routine activities or tours, the inspectors monitored the licensee's security program to ensure that observed actions were being implemented according to the approved security plan. The inspectors noted that persons within the protected area displayed proper photo-identification badges and those individuals requiring escorts were properly escorted. The inspectors also verified that checked vital areas were locked and alarmed. Additionally, the inspectors also observed that personnel and packages entering the protected area were searched by appropriate equipment or by hand.

No violations, deviations, unresolved, or inspection followup items were identified in this area.

4. Safety Assessment/Quality Verification (40500 and 92700)

a. Management and Safety Review Committee (MSRC)

Consumers Power Company's MSRC for the Big Rock Point and Palisades nuclear plants met on February 1, 1995, at the Palisades plant. On January 31, 1995, the subcommittee members toured the plant, attended daily meetings, and interviewed several members of the plant staff. On February 1, 1995, the inspectors attended the full committee meeting. The inspectors noted full participation by both the Big Rock Point and Palisades plant staff, also senior corporate management participated as members of the MSRC.

b. Review of Audit PA-94-003, "Palisades Health Physics and Radwaste Shipping"

The inspectors reviewed audit PA-94-003, "Palisades Health Physics and Radwaste Shipping". Although the audit contained several good findings it was not performance based. Also reviewed was surveillance report NPAD/P-93-029, "Palisades Outage Radworker Practices". This surveillance was performance based; however, it did not provide many details nor specify formal action items for deficiencies that should have required licensee followup and close-out. The licensee stated that the format of audits and surveillances were in the process of being changed and future audits would be more performance based and future surveillances would require more formal closure of findings.

c. Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems

1) Corrective Action Process

During the inspection period, the inspectors evaluated the effectiveness of licensee controls in identifying, resolving, and preventing issues that degrade the quality of

plant operations or safety. The inspectors also verified that corrective actions are completed in a timely manner, commensurate with the safety significance of the item, that the corrective actions are completed in a timely fashion, that the selected items were accurately characterized, and that a root cause evaluation was performed as applicable.

The following procedures were reviewed during this inspection:

NPAP -07, "Reporting, Evaluating, and Correcting Conditions Adverse to Quality"

NPAP -13, "Action Item Records (AIRs)"

NPAP -14, "Nuclear Performance Assessment Procedure"

NPAP -15, "Performance Assessment Record Program"

NPAP -16, "Performance Assessment and Recording"

Administrative Procedure No. 3.03, "Corrective Action Process"

Administrative Procedure No. 1.09, "Self-Assessment"

Administrative Procedure No. 3.01, "Plant Review Committee"

The corrective action program was administered by the Plant Safety and Licensing Organization. This organization was responsible for characterizing issues as significant or non-significant, verifying that corrective actions are completed in a timely manner, and monitoring that root cause evaluations are effectively conducted. The condition reports reviewed by the inspectors indicate that significant issues were receiving the appropriate attention by plant management. Once a condition report was identified as significant by the Condition Review group (CRG) it was then further evaluated by the Corrective Action Review Board. The root cause and corrective action plan proposed by the evaluator was reviewed and approved by the Management Review Board.

The inspectors reviewed Surveillance report NPAD (P-94-72), Palisades Condition Report System, to verify that the above procedures were utilized during the performance of this surveillance. The report identified a number of weaknesses in the Palisades Condition Report (CR) System. These included closure of corrective actions (CAs) by reference to open work orders, CAs closed before training is given and procedures or revisions are issued, CRs do not always meet all requirements and expectations for implementation of

assigned actions prior to sign off, and a sizable backlog in processing of corrective action documents exists.

The inspectors determined that all issues and concerns identified by the Nuclear Performance Assessment Department (NPAD) specialist were resolved in accordance with appropriate corrective action procedures. During discussions with licensee personnel, the inspectors were informed that a consultant has been hired to develop a new improved root cause analysis program for the Consumers Power Company. Initial training for plant management personnel has begun and additional training is planned for all personnel involved in the corrective action program.

2) Operating Experience Feedback

The inspectors evaluated the licensee's program for operating experience feedback. The following sources of information were utilized: significant event reports, significant operating events reports, significant event notifications generated by INPO, 10 CFR Part 21 notifications, NRC bulletins, generic letters, information notices, EPRI reports, etc.

Palisades Nuclear Plant Administrative Procedure No. 3.16, Revision 2, defined the responsibilities and provides instructions governing the program for processing the flow of industry operating experience reports and also provides the scope for the vendor interface program. Detailed instructions for the flow of industry operating experience reports such as screening, distributing, evaluating, reviewing, approving, and implementing identified corrective actions; tracking and disseminating to plant and corporate management were included in this procedure.

The following operating experience documents were reviewed:

- Information Notice 92-081, Potential Deficiency of Electrical Cables
- Information Notice 93-098, Motor Brakes on Valve Actuator Motors
- Information Notice 91-020, Electrical Wire Insulation Degradation
- Various SOERs

The Industry Experience and Assessment Department (IE&A) was staffed with personnel experienced in PRA; plant operations; and plant electrical and mechanical systems. The inspectors

confirmed that this department maintained appropriate files relating to operating experiences in industry and tracks required actions by the plant to address these issues. The Palisades plant had adopted a sixty day evaluation model recommended by INPO.

3) Self Assessment Activities

During this inspection period, the inspectors evaluated the licensee's quality organization and line management to determine if responses as a result of deficiencies in quality were prompt, if the quality organization has access to upper line management, and if the quality organization activities reflect findings and observations of the individual auditor.

The Nuclear Performance Assessment Department (NPAD) was responsible for administering the assessment activities for the Consumers Power Company. The department conducted audits and surveillances required by the technical specifications and also monitored overall performance activities at the Palisades and Big Rock Point power plants. Following completion of an audit by NPAD, an exit meeting was held with line management and a report was issued. Every quarter NPAD issues a report, Annunciator Panel Report, summarizing their findings and observations. This report was presented to senior plant managers during a scheduled management meeting. Senior plant and corporate management appear to be actively involved in this process.

The inspectors observed that condition reports listed in the Condition Report Log were reviewed for significance and disseminated to appropriate organizational levels for evaluation, review, concurrence, and approval. A number of 1995 condition reports were sampled and the inspectors confirmed that line management personnel were adequately involved in the process.

No violations, deviations, unresolved, or inspection followup items were identified in this area.

5. Maintenance/Surveillance (62703, 61726)

a. Maintenance Activities (62703)

Routinely, station maintenance activities were observed and/or reviewed to ascertain that the activities were conducted in accordance with approved procedures, regulatory guides and industry codes or standards, and in conformance with technical specifications.

The following items were also considered during this review: LCOs were met while components or systems were removed from service;

approvals were obtained prior to initiating the work; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; and activities were accomplished by qualified personnel.

Portions of the following maintenance activities were observed or reviewed:

- Work Order 24414532, "Clean, Lubricate, and Test Service Water Pump P-7C Breaker"
- Work Order 24201835, "Retorque Flanges or Replace Gaskets on Vacuum Degassifier Seal Water Cooler E-67"
- Work Order 24412155, "Load and Transport Dry Fuel Storage Cask VSC-09 to Storage Pad per FHS-M-32 (Loading and Placing the VSC Into Storage) and FHS-M-33 (Equipment Preparation for Dry Fuel Loading Operations)"
- Work Order 24510227, "Containment Air Cooler VHX-3 Service Water Leak Repairs"
- Work Order 24414866, "PM - Datalogger System Inverter EY-220: Check Frequencies and Capacitors to Ensure Reliability"
- Work Order 24412017, "Install Tubing Support for PI 1479 (K-6A Starting Air Pressure Indicator)"
- Work Order 24415120, "K-6A; Remove Crankcase Doors and Perform/Record Inspection"
- Work Order 24414955, "Replace "A" Air Start Motor on 1-1 Diesel Generator"
- Work Order 24510571, "Replace Flow Switch FS-5356B on P-39B per FES-93-071"
- Work Order 24303587, "Replace Flow Switch FS-5356A on P-39A per FES 93-071"
- Work Order 24202856, "Install Temporary Modification (TM) 94-017 in Place of Generator Demand Meters RD-0001 and RD-0002."

On January 11, 1995, control room operators noted that the loss of load bistable trip lights for reactor protection system (RPS) trip channels "A" and "C" illuminated. The bistable trip lights provide one indication of a reactor trip. However, no turbine or

reactor trip occurred, and no evidence that the turbine or reactor should have occurred. Further, no alarms annunciated in the control room when the bistable trip lights illuminated.

Plant operators responded immediately with a diagnosis for an Anticipated Transient Without Scram (ATWS) upon receipt of the bistable trip lights in the control room. Plant control room operators and personnel from reactor engineering and instrument and control departments participated in the investigation. The team reviewed various primary system parameters, both prior to and after the bistable trip lights illuminated. The team reviewed the plant events recorder and ongoing plant activities. The team concluded that no ATWS had occurred.

At the same time the bistable trip lights illuminated, a technician from Consumers Power Company's field services laboratory was working behind a control room panel where turbine trip relays are located. The field technician was in the process of installing a recorder to gather data on main generator electrical output. The licensee also investigated whether the field technician could have inadvertently energized the bistable trip lights. Based on circumstances surrounding the field technician's work activities, including his physical location, the licensee concluded that the field technician did inadvertently cause the bistable trip lights to illuminate.

The field technician caused the false reactor trip indication while landing electrical wires to install a personal computer (PC) to record main generator output data per TM No. 94-017. The TM provided the steps for installing the PC, but the field technician failed to follow these steps for installing the PC.

The field technician attempted to connect the PC leads to the second of two generator output meters, called a totalizer. The field technician inadvertently grounded a 15 Vdc power supply from the PC with a 120 Vac power supply to the totalizer. The licensee believed the ground caused a voltage spike, which was induced into the left channel turbine trip relay 0305L. The 0305L relay and associated cable were in close proximity to the totalizer.

The licensee investigated several possibilities to explain the cause of the indication in the control room. One was that the magnitude of the voltage spike was enough to energize the bistable trip lights, but not enough to actuate the loss of load trip matrix relays. The loss of load trip matrix relays provide the actual reactor trip function. Another factor concerned the response time of the associated components. The response time of the bistable trip lights was faster than that of the electro-mechanical matrix relays. The licensee concluded that the response of the reactor protection system to the inadvertent ground condition was due to either one or a combination of both of the factors stated above.

The inspectors had the following observations concerning the installation of the TM:

- Contrary to procedure TM No.94-017, there was no independent verification performed as each installation step of the TM was performed. The field technician wired both generator demand meters incorrectly. However, the grounded condition did not result until the attempt was made to connect the second meter. Had the proper verification been performed initially, as required, the incorrect wiring should have been recognized before the RPS was challenged.

Administrative procedure 9.31, "Temporary Modification Control," Rev.8, step 7.2.4, requires that "The installation of the TM shall be independently verified and this shall be documented on the TM form. The independent verification shall occur concurrent with the TM installation."

- The proper method of independent verification was not understood by Consumer Power Company's field services personnel. According to the system engineer, the field technician thought he could complete all of the steps of the TM and then have all of the work independently verified.
- The quality of the documentation of work performed was poor. The first two steps for work "performed by" and "independent verification by" were blank. Further, at the third step, the field technician signed the work form on January 16, 1995, when the work was actually performed on January 11, 1995.
- The instructions on the TM were not clear. The instructions were to "lift" the generator output meter wires and "land" the wires from the PC. The intent was to "remove" the generator output wires and connect the PC wires. The field technician connected the PC wires together with the generator output meter wires for the first meter, and attempted to do the same with the second meter.
- The prejob brief proved inadequate. There was an "informal" prejob brief held by maintenance and engineering personnel. The correct method of installing the PC leads were discussed, but the instructions were misunderstood by the field technician.

Failure to perform the required independent verification is considered a violation of Administrative procedure 9.31 (violation 50-255/95002-01(DRP)).

b. Surveillance Activities (61726)

During the inspection period, the inspectors observed technical specification required surveillance testing and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that results conformed with technical specifications and procedure requirements and were reviewed, and that any deficiencies identified during the testing were properly resolved.

The inspectors also witnessed or reviewed portions of the following surveillances:

- MI-6, "Area Monitor Operational Check"
- MO-7A-1, Attachment 6, "P-18A Fuel Oil Transfer Pump Test"
- QO-5, "Valve Test Procedure (Includes Containment Isolation Valves)"
- MO-7A-1, "Emergency Diesel Generator 1-1 (K-6A)"

One violation was identified. No deviations, unresolved, or inspection followup items were identified in this area.

6. Engineering and Technical Support (37700, 37551, 60846, 86700)

The inspectors monitored engineering and technical support activities at the site including any support from the corporate office. The purpose was to assess the adequacy of these functions in contributing properly to other functions such as operations, maintenance, testing, training, fire protection, and configuration management.

On February 8, 1995, Consumers Power Company announced the organizational realignment of several Engineering Department managers to support key plant initiatives. The most significant was the appointment of a manager to handle a reactor vessel annealing project. The other changes were mainly realignment in engineering management to support this effort.

a. Fuel Loading of Multi-Assembly Sealed Basket (MSB) #10 (60846)

The inspectors observed the following licensee activities associated with the loading of MSB #10:

- Loading of the MSB and licensee verification of fuel bundles and location in the MSB;
- Installation of the shield lid onto the MSB;

- Movement of MSB Transfer Cask out of the spent fuel pool into the washdown pit;
- Decontamination of the MSB Transfer Cask and MSB;
- Vacuum drying, welding, and helium backfilling of the MSB;
- Transporting the MSB and Ventilated Storage Cask (VSC) to the storage pad.

Access control and radiological controls were very good during all phases observed. Dry Fuel loading activities are scheduled to be accomplished over the next three months with completion scheduled prior to the May 1995 refueling outage.

b. Boraflex Inspections of Spent Fuel Racks (86700)

On January 14, 1995, the licensee completed blackness testing which was performed to determine the extent of Boraflex degradation in Westinghouse fuel racks in the spent fuel pool. Blackness testing was performed on 31 selected fuel storage cells in the spent fuel pool. Preliminary test results revealed that the Boraflex in the 31 cells tested is present and in good condition, with only minor degradation. This degradation has been bounded by the licensee's prior analysis.

The inspectors monitored Blackness Testing to determine the extent of Boraflex degradation in Westinghouse fuel racks in the spent fuel pool. Substantial loss of Boraflex, through leaching and radiation induced degradation, could pose a criticality concern with the high density storage racks used in the spent fuel pool. The preliminary results of the Blackness Test proved that a minor quantity of Boraflex was lost. However, this loss was insufficient to be a criticality concern for the fuel assemblies stored in the spent fuel pool.

During Blackness Testing, the inspectors found that the material licensee, Holtec International, did not have a reciprocity agreement for use of the radiography source in the State of Michigan. During the test, the inspectors inquired if the licensee had the necessary license to receive and possess the Cf-252 fast neutron source. Initially, the utility indicated that they had a license for Cf-252. However, upon further inquiry, it became known that neither the licensee nor Holtec International had the necessary license to use the source in the State of Michigan, as Michigan was not an agreement state with the NRC. Holtec International had a license from the State of Florida, which was an agreement state. However, since the use of the source was in a non-agreement state, Holtec International needed to have a Reciprocity Agreement from NRC Region II prior to use. After realizing that a Reciprocity Agreement did not exist, the

licensee put a stop work in effect for Holtec International, until one could be obtained from NRC Region II. Following receipt of the Reciprocity Agreement, the blackness test was resumed and completed satisfactorily.

No violations, deviations, unresolved, or inspection followup items were identified in this area.

7. Implementation of the Revised 10 CFR Part 20 (TI 2515/123)

The inspectors reviewed the licensee's implementation of the revised 10 CFR Part 20 regulations to ensure the establishment of effective programmatic controls with respect to high and very high radiation areas (HRAs and VHRAs), declared pregnant worker (DPW) and dose to embryo/fetus, planned special exposures (PSEs), and maintaining total effective dose equivalent (TEDE) as low as reasonably achievable (ALARA). The licensee implemented the revised Part 20 on January 1, 1993.

a. Control of HRAs and VHRAs

The original training for radiological technicians (RTs) was provided by a contractor. The licensee then based their lesson plans for general employee training and retraining on the material provided by the contractor. The inspectors reviewed the lesson plans and interviewed both RTs and other plant staff and verified adequate knowledge of the training material. The licensee's written procedures were based on the guidance of Regulatory Guide 8.38, Control of Access to High and Very High Radiation Areas in Nuclear Power Plants. All procedures were in place and appropriate training was completed prior to January 1, 1993.

The licensee identified one area in the plant which was controlled as a very high radiation area under certain conditions. This area was a room in containment that provided access to a three foot diameter tube which led to under the reactor vessel. The tube was also blocked by a flange with several bolts securing it in place. Although radiation readings had not been measured under the vessel at power, the licensee posted the door as a potential very high radiation area and locked the door during power operations.

The keys to the very high radiation area were under the control of the shift supervisor and duty health physics supervisor and require a special radiation work permit (RWP) and health physics accompaniment for entry.

The inspectors reviewed the administrative, refueling, and health physics procedures covering transient and potential high or very high radiation areas. These procedures appeared to be adequate to prevent the inadvertent or undetected creation of such an area.

b. DPW and Dose to Embryo/Fetus

Prior to the implementation of the revised Part 20, the licensee had a fetal protection program. The limits imposed to the fetus in this program were very similar to those in the new Part 20. With the implementation of the new Part 20, the licensee made their program voluntary and added the option for a woman to declare or undeclare pregnancy.

The inspectors interviewed four women to ascertain what training they had received with regard to the revised Part 20, their rights to declare and undeclare pregnancy, and the lower limits imposed for the embryo/fetus. All four remembered receiving the training and that it was their right to declare pregnancy voluntarily by notifying their supervisor. Knowledge of other specifics of the training varied among the four women.

c. PSEs

The licensee's procedure for approval of PSEs paraphrased 10 CFR 20.1206 and designated the Vice President-Nuclear as the approving official. There were no PSEs authorized to date and the licensee did not foresee the need to utilize this procedure in the future.

d. Maintaining TEDE ALARA

Interviews with plant staff and their supervisors indicated a general acceptance of the new TEDE/ALARA principles. The licensee used a combination of historical data, mock-up time studies, and increased use of air sampling to provide input to their determinations of whether respirator use was beneficial in maintaining TEDE/ALARA. When actual time differences were not available, the licensee used a factor of 1.2 (20 percent increased work time) for respirator use in their calculations. The licensee's procedure, HP 11.4, Evaluating Control of Airborne Radioactivity and Respiratory Protection, utilized flow charts and a simple graph comparing ambient dose rate versus expected airborne concentration to make the decision to wear or not wear respirators. The procedure was very easy to use and understand.

Respirator use decreased from 1359 respirators issued during the 1992 outage to 250 during the 1993 outage. Facial contaminations increased from 8 during the 1992 outage to 25 during the 1993 outage; however, the percentage of facial contaminations to total contaminations for the outage remained the same. None of these contaminations resulted in an uptake of radioactive material by the workers. The licensee believed this increase in contaminations was acceptable and that personnel contamination numbers should decrease in the future as workers improve their work practices.

The actions of TI/2515/123 are complete. No violations, deviations, unresolved, or inspection followup items were identified in this area.

8. Report Review (90713)

During the inspection period, the inspectors reviewed the licensee's monthly operating report for December 1994 and January 1995. The inspectors confirmed that the information provided met the reporting requirements of TS 6.9.1.C and Regulatory Guide 1.16, "Reporting of Operating information."

No violations, deviations, unresolved, or inspection followup items were identified in this area.

9. Exit Interview (71707)

The inspectors met with the licensee representatives denoted in paragraph 1 during the inspection period and at the conclusion of the inspection on February 21, 1995. The inspectors summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.