

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/86007(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 Plant

Inspection At: Palisades Site, Covert, MI

Inspection Conducted: February 4 through March 3, 1986

Inspectors: E. R. Swanson
C. D. Anderson
J. K. Heller

Approved By: *[Signature]*
C. W. Hehl, Chief
Reactor Projects Section 2A

3-28-86
Date

Inspection Summary

Inspection on February 4 through March 3, 1986 (Report No. 50-255/86007(DRP))

Areas Inspected: Routine, unannounced inspection by resident inspectors of operational safety; maintenance; surveillance; reportable events; regional request; and the drug allegation meeting of February 5, 1986.

The inspection involved a total of 107 inspector-hours onsite by three NRC inspectors including 18 inspector-hours on site during off-shifts.

Results: Of the areas inspected one violation with several examples was identified for failure to submit Licensee Event Reports. One open item related to repeated failure of charging pump closing coils was identified to track licensee resolution of this problem.

8604040105 860328
PDR ADDCK 05000255
Q PDR

DETAILS

1. Persons Contacted

Consumers Power Company (CPCo)

#F. W. Buckman, Vice President, Nuclear Operations
#J. F. Firlit, General Manager
*J. G. Lewis, Plant Technical Director
#*R. D. Orosz, Engineering and Maintenance Manager
W. L. Beckman, Radiological Services Manager
*R. M. Rice, Plant Operations Manager
*H. M. Esch, Plant Administrative Manager
W. M. Hodge, Property Protection Supervisor
*R. A. Fenech, Technical Engineer
*D. L. Fitzgibbon, Licensing Engineer
*R. E. McCaleb, Quality Assurance Director
#D. J. Smith, Human Resources Director
#K. W. Berry, Nuclear Licensing Director

Nuclear Regulatory Commission

#J. G. Keppler, Regional Administrator
#A. B. Davis, Deputy Regional Administrator
#E. G. Greenman, Deputy Director, Division of Reactor Projects
#T. N. Tambling, Director, Enforcement and Investigations Coordination Staff
#W. D. Shafer, Chief, Emergency Preparedness and Radiological Protection Branch
#C. W. Hehl, Chief, Reactor Projects Section 2A
#J. R. Creed, Chief, Physical Security Section
#B. A. Berson, Regional Counsel
#J. F. Suermann, Project Manager
#G. M. Christoffer, Security Inspector
#C. D. Anderson, Resident Inspector, Palisades

*Denotes those present at the Management Interview.

#Denotes those attending the February 5, 1986, Allegation meeting in Region III.

Numerous other members of the Plant Operations, Maintenance, Technical, and Chemistry Health Physics staffs, and several members of the Contract Security Forces, were also contacted briefly.

2. Operational Safety

- a. The inspectors observed control room activities, discussed these activities with plant operators, and reviewed various logs and other operations records throughout the inspection. Control room indicators and alarms, log sheets, turnover sheets, and equipment status boards were routinely checked against operating requirements.

Pump and valve controls were verified proper for applicable plant conditions. On several occasions, the inspectors observed shift turnover activities and shift briefing meetings.

Tours were conducted in the turbine and auxiliary buildings, and central alarm station to observe work activities and testing in progress and to observe plant equipment condition, cleanliness, fire safety, health physics and security measures, and adherence to procedural and regulatory requirements.

The inspectors made observations concerning radiological safety practices in the radiation controlled areas including: verification of proper posting; accuracy and currentness of area status sheets; verification of selected Radiation Work Permit (RWP) compliance; and implementation of proper personnel survey (frisking) and contamination control (step-off-pad) practices. Health Physics logs and dose records were routinely reviewed.

The inspectors observed physical security activities at various access control points, including proper personnel identification and search, and toured security barriers to verify maintenance of integrity. Access control activities for vehicles and packages were occasionally observed. Activities in the Central Alarm Station were observed.

An ongoing review of all licensee corrective action program items at the Event Report level was performed.

- b. While heating up on February 16, 1986 from a refueling outage, excessive leakage was noted on the "A" Steam Generator manway which necessitated a cooldown from approximately 400 degrees and 280 psig. An Unusual Event was declared at 2347 hours and terminated at 1145 hours on February 17, 1986, when cold shutdown conditions were reached. The manway was repaired and tested satisfactorily by noon on February 18, 1986.
- c. While in cold shutdown on February 18, 1986, a noise spike on a nuclear instrument caused a reactor protection system actuation at 0447 hours. The reactor and turbine had been reset for testing. A four-hour non-emergency report was made as required by 10 CFR 50.72.
- d. After heatup from cold shutdown on February 19, 1986, at 2249 hours the licensee calculated an unidentified primary coolant system (PCS) leakrate of 3.75 gpm. No significant leakage outside the PCS was identified and at 0449 hours on February 20, 1986, the licensee declared an Unusual Event. Initial investigation determined that some leakage was going to the clean radwaste system and some was leaking back into the Safety Injection Tank System. A leakrate calculation at 0545 hours determined the unidentified leakage to be 2.12 gpm.

Subsequent licensee investigation determined and isolated the leakage sources. Approximately 1.0 gpm was attributed to the letdown system interleakage to the clean waste tank and another 2.5 gpm leak was terminated by isolating manual valves in a path through two parallel loop check valves, pressure control valves associated with the safety injection tanks and relief valves going to the primary drain tank. The Unusual Event was terminated at 1325 hours with PCS leakage determined at 0.014 gpm. Subsequent investigation of the letdown system leakage resulted in a blown packing on a manual valve which contributed to a 3.8 gpm leakrate determination at 2300 hours on February 20, 1986. The leak was isolated and repaired and a subsequent leakrate calculation at 0300 hours on February 21, 1986, showed 0.21 gpm unidentified PCS leakage. The unit remained in hot shutdown while evaluating leak sources, and performing startup testing.

- e. At 0040 hours on February 21, 1986 with the plant in hot shutdown, the licensee declared an Unusual Event when the fuel oil storage tank dropped below the Technical Specification minimum. The same tank supplies site heating boilers which were using the fuel. Delivery of oil had been delayed due to bad weather and icy roads. Both emergency diesel generators were otherwise operable and the Technical Specifications allow the condition to exist for 24 hours before the unit is required to be in cold shutdown. The licensee terminated the Unusual Event at 0355 hours on February 21, 1986 after receiving a shipment of fuel oil.
- f. With the plant in hot shutdown at 1115 hours on February 21, 1986, a reactor trip was caused by noise on nuclear instrument NI-04 which induced high startup rate trip signal. All rods were on the bottom with the reactor and turbine trips reset for testing. This was the second trip from the same cause. Four-hour non-emergency reports were made to the NRC. The licensee identified the cause as being due to welding and a radiation monitor relay which induced the signal noise.
- g. While in hot shutdown on February 25, 1986, at 1515 hours the licensee experienced a spurious reactor and turbine trip. A vital AC power supply transfer (Y.30 to No. 3 inverter) caused a nuclear instrument (NI-03) noise spike which brought in a high startup rate trip, reactor trip, turbine trip and emergency diesel generator automatic start. All systems functioned as designed.
- h. On February 28, 1986, at 0925 hours the licensee began pulling rods to startup from a refueling and maintenance outage that started November 30, 1985. The reactor achieved initial criticality at 1308 hours on the same day. The unit was synchronized to the grid at 1355 hours on March 3, 1986.
- i. During low power physics testing on March 1, 1986, at 1600 hours the No. 4 shutdown rod was unable to be moved. Low power physics testing was then stopped. At 2020 hours the shutdown rod was exercised and declared operable. At 2045 hours the No. 4 shutdown rod was again unmovable and declared inoperable. The control rod drive mechanism

problem was attributed to an intermittently open connector located on the reactor head. No maintenance was initiated. At 0642 hours on March 2, 1986, after taking torque traces during rod dropping and exercising, the shutdown rod was declared operable when no further problems were noted.

- j. At 1710 hours on March 1, 1986, the licensee declared an Unusual Event per their Emergency Plan for a Technical Specification required shutdown. The licensee reported, as required by 10 CFR 50.72, that three of four newly installed, environmentally qualified containment radiation monitors appeared to be inoperable. The licensee took immediate compensatory measures by placing one monitor in a tripped condition in order to satisfy the containment isolation logic requirements. Subsequent licensee review determined that the cause of the apparent monitor inoperability was related to the effect of low background radiation in the vicinity of the three monitors during low power physics testing. Troubleshooting disclosed that an input from a detector below a certain threshold value (in this case, the low background radiation) would cause the amplifier output to reverse, which in turn caused a "pegged low" indication on the monitor's scale and a concurrent loss of the green "operating" light, even though the monitor was operable. The Plant Review Committee met and determined that the monitors were, in fact, operable and that this condition should be verified periodically by performing a circuit check which results in an onscale reading and energizing the green light. The Unusual Event was terminated at 2030 hours that night.

No violations or deviations were identified.

3. Maintenance

The inspector reviewed and/or observed the following selected work activities and verified appropriate procedures were in effect controlling removal from and return to service, hold points, verification testing, fire prevention/protection, and cleanliness:

- a. Troubleshooting of the breaker closure problem for the service water pump, P-52B was observed (FWS-24602008). This one and several other safety related breakers had either failed to close or closed and then opened during testing. It was found that one control switch had been improperly rebuilt and the other cases apparently were due to the breakers being improperly racked in. Subsequent testing found no repeat failures. It is the licensee's policy to test breakers after they are racked in during operation which would detect any similar problems in the future.
- b. Calibration of the feedwater flow controller FT-0701 (FWS 24602076) was observed.
- c. Troubleshooting of the steam pressure control valve (PCV-0521) to the turbine driven auxiliary feed pump was observed.

- d. The coolant charging pump P-55B failed to start. It was found to be due to a failed closing coil (CVC-24603221). This closing coil was replaced about a year ago and so additional action is planned by the licensee. This may include staging a spare breaker for rapid repair, installing counters to determine the use/failure rate of the breakers or installing contactors to start and stop the pump instead of the power breaker. The breaker vendor was contacted and was not aware of any generic concerns with frequent failure of these breakers. Licensee resolution of these repetitive failures will be tracked as an open item (255/86007-02(DRP)).
- e. A number of valve problems were experienced during outage testing. A common cause between several of them was the instrument air system which still contained some desiccant from a previous filter failure and water contamination due to the air dryers being out of service for several months during the outage. The air dryers were repaired and the contaminants were purged from the system. The valves were inspected, the actuators cleaned and rebuilt as necessary, and the valves were retested.
- f. About forty-eight G. E. hand switches were rebuilt to correct a potentially generic problem with lack of lubrication on the internal operating cams. After testing identified a loose cam, the licensee sampled five more. At the request of the inspector the licensee took a broader sample and identified two more loose cams (half turn on a screw) and two switches which had the wrong cams installed. All switches were subsequently verified to be correctly rebuilt.
- g. Setpoint Change 86032 removed the bypass torque limit switches from the "open" circuits on eight auxiliary feedwater valves Limitorque operators in response to a concern expressed by the NRC.

No violations or deviations were identified.

4. Surveillance

The inspectors reviewed surveillance activities to ascertain compliance with scheduling requirements and to verify compliance with requirements relating to procedures, removal from and return to service, personnel qualifications, and documentation. The following test activities were inspected:

- a. T-190 Service Water Supply to Auxiliary Feedwater Pump P-8C
- b. T-196 Auxiliary Feedwater Pump P-8C 48 Hour Endurance Run
- c. MO-38 Auxiliary Feedwater Systems Inservice Test Procedure on Pump P-8B
- d. RO-8 Engineered Safeguard System (Blackout Test)

No violations or deviations were identified.

5. Licensee Event Reports

Through direct observations, discussions with licensee personnel, and review of records, the following reportable events were examined to determine that reportability requirements were met, immediate corrective action was accomplished as appropriate, and corrective action to prevent recurrence has been accomplished per Technical Specification.

(Closed) LER 255/82019 Revision 2: The LER was updated to reflect a change in corrective action for the containment airlock interlock which had failed. A "hard spot" on the inner door closure mechanism was repaired which had given a false feeling of being closed. The interlocks required adjustment and were further modified to provide a more positive lock during door operation.

(Closed) LER 255/84025 Revision 1: Primary coolant system unidentified leakage was measured to be in excess of Technical Specification limits. The event report was revised to indicate that it was voluntary and not a required report.

(Closed) LER 255/85006 Revision 1: Two control rods were inoperable at the same time due to lack of testing on one and mechanical binding of the other. The licensee took action to test the first rod and thereby comply with the limiting condition for operation. The purpose of the update was to change the reporting requirement to indicate a voluntary report.

(Closed) LER 255/85017 Revision 1: Environmental qualification of the engineered safeguards room temperature control switches was not tracked and not completed as committed. This supplement added a statement that "immediate action was provided to ensure adequate Engineered Safeguards Room Cooling". Although the report does not so state, the actions were to bypass the switches by operating the fans in manual, and caution tagging the control switches.

(Closed) LER 255/86001: A radioactive waste shipment to Richland, Washington was not acknowledged as required by 10 CFR 20.311(h). It was subsequently determined by the licensee that the shipment made on December 17, 1985, was buried on December 30, 1985. Written acknowledgment was received on January 13, 1985. This report, made under the requirements of 10 CFR 20.311(h)(2), is considered closed.

(Closed) LER 255/86002: The missile shield lifting device was found to be outside its safe working load requirement due to the incorrect weight values assigned to the shields. While conducting a review of the weights to be used for a load test of the Polar Crane on January 2, 1986, it was determined that the missile shields weigh 64 tons rather than 35 tons. All components of the lifting device had sufficient margin to meet the new safe working load requirements except for the master ring. This master ring has a safe working load of 52 tons. After measurement and evaluation it was determined that since no elongation of the ring was evident after eight lifts that it would be acceptable for use until a new device could be purchased. The licensee does not know how this error occurred but it apparently has existed since plant construction. No review of the weight values appeared to have been done under the NUREG-0612 heavy loads issue. The licensee plans to replace the lift rig before the next refueling.

(Closed) LER 255/86003: Valve motor operators were determined not to be environmentally qualified under a generic issue identified at other plants. Thirteen pre-1970 vintage qualified Limitorque operators were found to contain undocumented, vendor supplied wiring. All the subject wiring in these valves was replaced with IEEE 323-1974 environmentally qualified wire. The licensee's evaluation concluded that the undocumented wire would likely have withstood the effects of a LOCA. This event report is closed.

(Open) LER 255/86004: Fourteen of twenty-four main steam relief valves were found to exceed the plus/minus 1% of setpoint acceptance criteria. All valves except one were found to be within 2% of their setpoint with the one being 2.8%. The licensee believes the errors to be due to the "as left" settings after the last outage and corrosion deposit buildup during operation. The valves were overhauled and reset with the assistance of a valve manufacturer representative. The licensee plans to supplement the LER when an evaluation of safety significance and further evaluation of the acceptance criteria are completed. Due to the additional review and evaluation required of this event by the licensee and NRC it remains open.

The licensee was cited in Inspection Report No. 255/86003 for having two fire doors open without compensatory measures established which is in violation of Technical Specification (TS) 3.22.5. The east safeguards room fire door was found open by an NRC inspector on January 6, 1986, and the auxiliary feed pump water-tight fire door was found open by NRC inspectors on January 8, 1986. The licensee failed to submit Licensee Event Reports (LERs) on these two occurrences. 10 CFR 50.73(a)(2)(i)(B) requires that any operation or condition prohibited by the plant's TS be reported via a LER. Failure to do so is considered an example of the violation as set forth in the Appendix (255/86007-01a(DRP)).

On December 14, 1985, at 1210 hours an inadvertent right channel containment isolation occurred due to a high radiation trip of a containment radiation monitor. The trip was caused by a contaminated light being moved past the monitor. On December 15, 1985, at 2258 hours and 2312 hours respectively, left and right channel containment isolations occurred due to increasing background radiation levels during removal of the incores during refueling operations. None of these isolations were preplanned evolutions, thus LERs are required per 10 CFR 50.73(a)(2)(iv) which states any event or condition that results in manual or automatic actuation of any Engineered Safety Feature that is not part of a preplanned sequence must be reported. These ESF actuations were properly reported in accordance with 10 CFR 50.72, four hour reportings. No LERs were submitted, therefore, these are considered to be examples of the violation set forth in the Appendix (255/86007-01b(DRP)).

One violation with several examples and no deviations were identified in this area.

6. Regional Request

Upon receipt of the NRC's Vendor Program Branch Inspection Report No. 99901033/85-01 of Power Inspection Incorporated (PII) it was identified that Palisades Eddy Current Testing (ECT) equipment may have been improperly calibrated by PII. Palisades has used PII since 1982 in some phases of the steam generator and main condenser inspections. The licensee reviewed the report provided and concluded that none of the suspect equipment was utilized for steam generator ECT. Due to the identified irregularities in documentation of personnel training and certification, procurement and equipment calibration, the licensee decided that PII will not be used until a satisfactory onsite audit is conducted by their own auditors.

7. Drug Allegation Meeting in Region III

On January 31, 1986, the Regional Administrator asked the licensee to prepare a presentation on their actions regarding a drug allegation received by the licensee in December of 1985 and why they believe the plant is safe to start up following the refueling outage regarding any work the alleged drug users may have performed. The allegation concerned usage of drugs by members of the licensee's electrical maintenance shop. On February 5, 1986, the licensee met with the NRC representatives denoted in Paragraph 1 in the Region III office in Glen Ellyn, Illinois. The licensee presented the chronology of events concerning the allegation including the second allegation received on February 3, 1986. The licensee concluded that the allegations were false due to all urinalysis results being negative.

The licensee proposed a sample reverification of electrical work done by those electricians accused of using drugs. Eight of twenty-one work orders performed two weeks prior to and two weeks after the alleged drug use were selected for reverification by individuals other than those involved. If abnormalities were noted, further evaluation would be performed. The NRC agreed that the sample program was adequate.

The licensee also briefly discussed the fitness for duty policy that will be implemented at Palisades.

Subsequent to the meeting, the reverification inspections noted no abnormalities. The Fitness for Duty program was presented to the plant employees during the week of February 10, 1986, to be fully implemented on March 15, 1986.

8. Management Interview

A management interview (attended as indicated in Paragraph 1) was conducted on February 28, 1986, following the inspection. The scope and findings of the inspection were discussed. Also discussed were the licensee's plans to startup with a number of known equipment deficiencies. Two of four primary coolant pumps have failed seals on the first of four stages. A loop check valve is known to have a 2.25 gpm leak rate which can be reduced by closure

of other valves to 0.4 gpm. Intermittent leakage from the Chemical and Volume Control System to the Clean Radwaste System causes high PCS leak rates to be measured. The licensee committed to repairing these and other valve problems in the event that the plant is taken to a cold shutdown condition, and acknowledges that they are not content with the situation. The licensee planned to continue with plant restart and operation in order that they may identify any other problems which may require a cold shutdown to repair. The licensee was appraised of the NRC view that their course of action was considered less than prudent and would be a factor in the next SALP review. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.