U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/82-05(DPRP)

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 1-5, 8-12 and 16-26, 1982

Inspectors: B. L. Jorgensen D.C. Boyd 3-22-82
for J. K. Heller for D.C. Boyd 3-22-82

Approved By: D. C. Boyd, Chief D.C. Boyd 3-22-82
Reactor Projects Section 1A

Inspection Summary

Inspection on February 1-5, 8-12 and 16-26, 1982 (Report No. 50-255/82-05(DPRP))
Areas Inspected: Routine resident inspection program activities including: plant trip review; activities during long-term shutdown; maintenance; surveillance; reportable events; and miscellaneous independent inspections. The inspection involved a total of 200 inspector-hours onsite by two NRC inspectors including 40 inspector-hours onsite during off-shifts.
Results: Of the six areas inspected, no items of noncompliance or deviations were identified in five areas. One item of noncompliance (Exposure reporting under 10 CFR 20.408 and 19.13) was identified in the remaining area.

DETAILS

1. Persons Contacted

*R. W. Montross, General Manager
*J. S. Rang, Operations/Maintenance Superintendent
*H. J. Palmer, Technical Superintendent
*G. H. R. Petitjean, Technical Engineer
W. S. Skibitsky, Operations Superintendent
B. L. Schaner, Operations Supervisor
C. H. Gilmor, Maintenance Superintendent
D. P. Spry, Property Protection Advisor
W. P. Mullins, Health Physicist
R. E. McCaleb, Quality Assurance Superintendent
S. Ghidotti, Shift Supervisor
A. S. Kanicki, Shift Supervisor
D. W. Kaupa, Shift Supervisor
E. I. Thompson, Shift Supervisor
D. W. Langschwager, Shift Supervisor
H. H. Dearth, Instrument and Control Supervisor
P. F. Bruce, Instrument and Control Engineer
*J. Greenwood, Quality Assurance Administrator

*Denotes those present at management interview.

Numerous other members of the plant Operations, Maintenance, Technical, and Chemistry/Health Physics departments were also contacted briefly.

2. General

The plant tripped from high power on February 4, 1982, and an apparent hydrogen explosion occurred later that same day as preparations were being made to restore the unit to service. The plant was taken to and maintained in the cold shutdown condition the remainder of the month while maintenance and repairs were performed.

3. Plant Trip

On February 4, 1982, at 0406 the reactor automatically tripped on a thermal margin/low pressure signal during a rapid power de-escalation resulting from loss of the "A" cooling tower pump. The inspector ascertained the status of the reactor and safety systems by observation of control room indicators, discussion with licensee personnel, and review of recorded information concerning plant parameters. The trip was followed shortly by a safeguards actuation from pressurizer low pressure, primarily as a consequence of the large cooldown required to restore initially high primary coolant system temperature to normal values. The inspector verified proper licensee actions, including operational control and communications.

All safety-related plant equipment performed as designed for the reactor trip and for the safeguards actuation. Some non-safety-related equipment did not appear to perform as expected:

a. the datalogger printed erroneous primary system pressure and missed some data while double-printing others

b. the atmospheric steam dump valves did not appear to open and close as quickly as designed

c. the "ramp" feature on the "B" main feedwater pump did not perform or performed sluggishly

Items b. and c. above may have contributed to an overshoot in the primary system cooldown/depressurization which resulted in the safeguards actuation. These items were discussed with plant operations management on February 11, 1982, and at the management interview. Testing and repairs/adjustments were completed as necessary in the steam dump and main feedwater control systems during the outage.

No items of noncompliance or deviations were identified.

4. Activities During Shutdown

The plant was shut down from February 4, 1982, through the end of the month following a non-nuclear industrial accident involving an apparent hydrogen explosion in the electrical generator exciter. Preliminary licensee investigations indicated hydrogen may have leaked from the main generator into the separate exciter housing via the shaft radial seal. A specific probable ignition source was not identifiable - - several were possible. While repairs were made on the exciter the plant was taken to cold shutdown and other maintenance performed.

The inspector made frequent control room observations, reviewed applicable logs and conducted discussions with control room operators. The inspector verified the operability of selected emergency systems, reviewed tagout records, and verified proper return to service of affected components.

During one control room tour, the inspector reviewed the log for hourly check of degraded fire barriers. Hourly tours were being properly made, but the log was incomplete in identification of degraded barriers. The open penetrations not identified were determined to be adjacent to penetrations which the log clearly documented as checked hourly. Discussion with the individual conducting the "firewatch" tours established all penetrations were being checked. The need for improved documentation to cover all open penetration fire barrier checks was discussed with the Property Protection Advisor.

Additional tours and observations were made in the following areas:

a. turbine building
b. auxiliary building
c. protected area access control
d. security fence
e. feedwater purity building
f. containment building

The inspector verified implementation of radiation protection controls, station security plan, and housekeeping/cleanliness controls; observed plant equipment conditions, including potential fire hazards or fluid leaks; and verified that maintenance orders had been initiated for equipment in need of repairs. Miscellaneous minor items relating to readying the containment building for isolation were identified, (example: stopped-up drip pans on No. 4 air cooler) brought to the attention of plant staff, and resolved.

The inspector reviewed one liquid batch release (82-003R) to verify compliance with regulatory requirements.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under Technical Specifications, 10 CFR, and administrative procedures.

No items of noncompliance or deviations were identified.

5. Monthly Maintenance Observation

Station maintenance activities of safety related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with Technical Specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and, fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety related equipment maintenance which may affect system performance.

The following maintenance activities were observed/reviewed:

a. Installation activities for the new containment vent lines

b. Leak repairs on the electrical generator

c. Repair of the traveling water screens

d. Replacement of secondary position indicator No. 20

e. Replacement of "D" primary coolant pump seal

f. Auxiliary feedwater pump motor removal for offsite repair

Following completion of maintenance on the above items, the inspector verified that these systems had been returned to service properly.

No items of noncompliance or deviations were identified.

6. Monthly Surveillance Observation

The inspector observed testing on the systems listed below and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with Technical Specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspector also witnessed portions of the following test activities:

a. Generator exciter fuse and diode electrical testing

b. Calibration test of DPT-0909

c. Pressure testing (construction phase) of containment vent lines

d. Startup range nuclear instrument preamplifier test

e. Electrical testing of emergency diesel 1-1 governor controller

The inspector reviewed 51 completed monthly surveillance tests performed during January and February 1982, to verify: that the tests were covered by properly approved procedures; that the procedures used were consistent with regulatory requirements, licensee commitments and administrative controls; that minimum skill requirements were met, test prerequisites were completed, special test equipment was calibrated, and required data was reviewed by personnel other than the individual performing the test. The inspector noted test MI-2, performed with the plant shutdown in February, was incomplete in that steam generator

level trips were not able to be verified. When the licensee did not reschedule MI-2 for completion prior to return to critical, the inspector informed the licensee that the surveillance interval on steam generator level trip verification had expired, and completion of this testing was a requirement for return to critical operations. The licensee then properly completed MI-2 before criticality. This matter was discussed at the management interview.

No items of noncompliance or deviations were identified.

7. Licensee Event Reports Followup

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications.

a. (Closed) LER 79-31 "Uncontrolled Release of Fission Gas." During power reduction and primary coolant system diversion, an uncontrolled release of fission gas occurred to the auxiliary building atmosphere through a relief valve which had been removed from the waste gas decay tank for repair and testing. The release was terminated and the opening blank-flanged until the relief valve was replaced. The release limit was verified in a previous report.[1]

b. (Closed) LER 79-035 "Release of Wrong Gas Decay Tank." During a release of a waste gas decay tank, the waste gas monitor alarmed and terminated the release. The licensee determined that a partial release of the wrong tank occurred when the tank had been improperly identified on the batch card. To prevent reoccurrence, the licensee added a review step to the batch card. The release limit was verified in a previous report.[1]

c. (Closed) LER 80-025 "Unplanned Gaseous Release." While venting the volume control tank to the waste gas surge tank, an unplanned release of fission gas occurred to the auxiliary building atmosphere from a defective waste gas compressor. The leakage was determined to be from the compressor head, via the seal between the head and the diaphram; caused by either dirt trapped between the head plate and diaphram or by non-uniform torquing of the compressor head bolts. The diaphram was replaced and a maintenance procedure to address head bolt torquing, diaphragm cleanliness and post-maintenance leak testing. The release limit was verified in a previous report.[1]

[1] IE Inspection Report No. 255/81-27(DETI).

d. (Closed) LER 80-040 "Unplanned Gaseous Release." While venting the quench tank to the waste gas surge tank, an unplanned release of fission gas occurred to the auxiliary building atmosphere from a defective isolation valve to a waste gas compressor that was disassembled for repairs. Disassembly of the valve revealed that a shear-pin holding the diaphragm to the operating shaft was broken. The shear-pin was replaced. The valve returned to service and a maintenance procedure developed to inspect shear pins on an annual basis. The release limit was verified in a previous report.[1]

e. (Closed) LER 81-45 "Power Loss to Fire Protection Annunicator Panel." During construction activities, a fault occurred in the power supply to the fire protection system annunicator panel, resulting in loss of alarm capacity required by the Technical Specifications. A fire watch was posted until power was restored to the panel. The loss of power was caused when a construction crew placed a rigging line over a cable tray, pinching a cable and resulting in damage. The power cable was replaced and the other cables in the tray were inspected for damage. The licensee briefed the contractor on acceptable rigging practices.

No items of noncompliance or deviations were identified.

8. Miscelleneous Inspection Items

a. TMI Item Followup

During this inspection, a review of the overall status of items from NUREG-0737, "Clarification of TMI Action Plan Requirements," was completed. This review specifically focused on identification of items for which licensee action is complete or not required, but which had not previously been examined by the inspector.

(Closed) NUREG-0737 Item II.K.3.25 - Effect of Loss of AC Power on Pump Seals. NUREG-0737 establishes one acceptable solution as supplying emergency power to the component cooling water pumps. As stated in the licensee's letter of December 19, 1980, the Palisades plant design provides emergency power for component cooling water pumps.

b. Emergency Plan Drill

The inspector participated in the onsite NRC observation of the licensee's emergency plan drill on February 23, 1982. This review is documented in a separate report.[2]

[1] IE Inspection Report No. 255/81-27(DETI).

[2] IE Inspection Report No. 255/82-03(DEPOS).

c. Personnel Radiation Exposure Reporting

The inspector was contacted on February 12, 1982, by the Millstone Nuclear Station NRC inspection office and advised a construction contract worker who had been employed at Palisades had apparently not received a timely personal copy of his NRC Form 5, "Current Occupational External Radiation Exposure." This was reviewed with licensee personnel, with the finding that the individual had terminated at Palisades on October 24, 1981, and that an "official" NRC Form 5 had not been provided the individual as of February 12, 1982. The licensee had provided an "estimated" exposure report on October 24, 1981. An "official" Form 5 was dispatched the next working day after this item was identified. Federal Regulations at 10 CFR 20.408(b) and at 10 CFR 19.13 (d) require reporting of exposure information to the NRC and to the worker, respectively, within 30 days of exposure determination or within 90 days of employment termination, whichever is earlier. In the case described above, the report of exposure followed termination by more than 90 days, thus representing noncompliance with the referenced 10 CFR requirements. Licensee reviews identified a total of six other personnel for whom similar delayed reporting occurred. Corrective actions to prevent recurrence are in progress. These will be reviewed in a future inspection by a Health Physics Specialist.

One noncompliance and no deviations were identified in review of this area.

d. Containment Purging/Venting

During this inspection period, the licensee completed installation of a new purging/venting system for containment, with the exception of the purge fan inside. Installation and testing were observed by the inspector as noted above. The inspector also assured proper licensee notification to the Office of Nuclear Reactor Regulation concerning the installation and planned use of the new system, as this represents a change from previously documented licensee commitments on the purging issue. The licensee has verified the new system design meets NRC criteria which will permit containment purging during power operations.

9. Management Interview

A management interview (attended as indicated in Paragraph 1) was held March 8, 1982, following completion of the inspection. The following items were discussed:

a. The inspector summarized the scope and findings of the inspection as described in these Details.

b. The one item of noncompliance was specifically identified and discussed. (Paragraph 8.c)

c. Performance of non-safety-related equipment following the plant trip of February 4, 1982. (Paragraph 3)

d. Apparent erroneous scheduling of surveillance test MI-2 on the basis of frequency rather than on plant condition. (Paragraph 6)