

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-255/79-15

Docket No. 50-255

License No. DPR-20

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

Facility Name: Palisades

Inspection At: Covert, MI

Inspection Conducted: September 4-6, 12-14, 17-21 and 25-28, 1979.

Inspector: *B. L. Jorgensen*
B. L. Jorgensen -

10-12-79

Approved By: *D. C. Boyd*
D. C. Boyd, Chief
Reactor Projects Section 3

10-12-79

Inspection Summary

Inspection during September, 1979 (Report No. 50-255/79-15)

Areas Inspected: Routine inspection by the assigned NRC Resident Inspector covering reportable events, I.E. Bulletins, Maintenance Department activities, procedures, and cleanliness. The inspection involved 95 inspection hours onsite.

Results: Of the five areas inspected, no items of noncompliance or deviations were identified in four areas. Three noncompliance items were identified in the remaining area. (Paragraph 2: violation - containment integrity violated; infraction - failure to adhere to required procedure; infraction - failure to confirm condition of manual containment isolation valves after refueling outages.)

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DETAILS

1. Persons Contacted

- *J. Lewis, General Manager, Palisades
- *B. Schaner, Operations Supervisor
- *G. Petitjean, Technical Engineer
- *G. Gilbody, Quality Assurance Inspector
- T. Meek, Health Physicist
- T. Neal, Radioactive Material Control Supervisor
- B. Harshe, Senior Engineer
- K. Osborne, Senior Engineer
- R. Story, Assistant Mechanical Maintenance Supervisor
- J. Dearth, Instrument and Control Supervisor
- W. Staley, Instrument and Control Supervisor
- R. Mieras, Shift Supervisor

The inspector also contacted a number of other personnel; members of the operations, maintenance, technical, and radiation protection staffs.

*Denotes those present at the management interview on October 2, 1979.

2. Reportable Events

The inspector reviewed the licensee's actions concerning the following event reports to verify proper review and evaluation; corrective action; and compliance with plant limits. Records and personnel interviews were used in the review.

- a. LER 79-10: Excessive primary system leakrate. A manual valve (CVC502) in the letdown system was leaking at 17gpm to the radwaste system. The licensee commenced an orderly shutdown, as required, and identified and secured the mis-positioned valve. The valve's stop was subsequently repaired, to provide positive indication of closure. This item is closed.
- b. LER 79-11: Primary data logger inoperable. The licensee commenced the required power reduction, but repaired failed multiplexer relays and restored the equipment to service within one hour. This item is closed.
- c. LER 79-14: Primary computer failed. The computer was reprogrammed and restored to operability^{1/} within two hours. This occurrence was similar to LER 79-07.^{1/} This item is closed.

1/ I.E. Inspection Report No. 050-255/79-05.

- d. LER 79-16: Unmonitored emergency diesel failure mode. The failure of relays 106D-1 or 106D-2 to reset (de-energize) following normal shutdown sequencer operation, would "lockout open" a diesel generator output breaker. The licensee has installed annunciation for the "relay-energized" condition, and developed an appropriate annunciator response procedure item. This item is closed.
- e. LER 79-18: Failure to flow-test boric acid gravity feed line after maintenance and prior to reactor criticality. The minimum operability requirements of the Technical Specifications were mis-interpreted by the duty shift supervisor, who was aware of the status of the boric acid gravity feed line. All shift supervisors were advised of this occurrence and instructed to exercise great care in interpreting requirements for criticality. This item is closed.
- f. LER 79-19: Reduced containment isolation redundancy. The containment sump was drained via manual valve 500 DRW (between the two automatic isolation valves) rather than via manual valve 511DRW (outboard both automatic valves), due to a communication error. Thus, design redundancy was reduced to a single automatic isolation valve in this flowpath. The single valve was operable throughout the draining process. This item was identified to and reviewed with the involved personnel, with followup discussion and review for all operations staff during the routine retraining cycle. This item is closed.
- g. LER 79-21 and LER 79-22: Inoperable snubbers. Two snubbers without visible oil level were separately identified during routine Technical Specification surveillance. Both were replaced with operable units from stock within the time requirements of the pertinent "action statement." Several minor documentation discrepancies were noted by the licensee's Q.A. review of this corrective action package, all of which were subsequently corrected. This item is closed.

On September 14, 1979, the licensee notified the Resident Inspector onsite of a determination made the previous day that containment integrity requirements had not been met during Cycle 3 operations. The inspector conducted a parallel investigation of this matter, concurrent with the licensee's investigation. The inspector's findings are consistent with those of the licensee to date, and are discussed below.

The Palisades Nuclear Generating Plant was designed and constructed with a smaller (nominal 3-inch) bypass line around the 48-inch containment purge exhaust automatic isolation valves. This purge exhaust bypass, according to Safety Analysis Report references, was intended for protection against post-accident hydrogen buildup in

the containment building. Series manual isolation valves in the bypass line were to be opened to establish an intentional, small, (one volume-percent per day) filtered purge. Hydrogen recombiners have since been installed, and operation of the purge bypass in its design mode is no longer contemplated. The bypass line is open to the containment atmosphere, so that the containment integrity is dependent on the manual isolation valves being maintained in the locked-closed position.

On March 20, 1978, during a refueling outage to load the Cycle 3 core, the purge exhaust bypass line (penetration 4.a) was subjected to a local leak-rate test with successful results. This test involves pressurizing the line between the two locked-closed isolation valves and verifying valve leak-tightness by the absence of pressure decay. On the completion of this test, the isolation valves are left locked closed.

In the period April 4-7, 1978, about two weeks before unit startup, additional testing was performed in the purge exhaust bypass system. This testing, to verify the efficiency of the downstream filter unit, requires that the isolation valves be open. At about the same time (April 2-6, 1978) the Containment Integrity Checklist, C.L.3.3, was being completed preparatory to returning the unit to service. Checklist C.L.3.3 includes penetration 4.a, but lists only the test tap between the manual isolation valves for closure verification. (This is discussed further below.) It is not clear from the record whether the operator checking penetration 4.a may have been physically present at a time when the isolation valves were open to permit filter-testing.

It is now believed the containment purge exhaust bypass isolation valves were not re-closed on completion of the filter efficiency testing under Procedure H.P.6.27 on or about April 7, 1978, but were left (locked) in the open position. The valves remained locked-open throughout Cycle 3 operations; which included numerous and sometimes lengthy power operations, including full-power; and which ended with unit shutdown for refueling on September 8, 1979. This operation of the unit in other than cold shutdown, with the containment integrity violated by the locked-open condition of the purge exhaust bypass isolation valves, is contrary to the requirements of Technical Specification 3.6.1, and is a Violation.

The valves were discovered in the locked-open condition on September 11, 1979, by an operator setting-up to perform the local leak-rate test for the current refueling outage. The inspector's review included an attempt to identify any administrative failures which may have contributed to the failure to close the subject containment isolation valves or to the failure to identify and correct the mis-positioning error earlier. Problems identified during this review are discussed below.

First, the filter efficiency test procedure (H.P. 6.27) is deficient, and it was not properly implemented. This is a brief and generalized procedure which is also used for filter efficiency testing in other safety-related systems, and which fails to recognize that repositioning of valves may be required. No specific or general instructions are given for restoration of altered components to their original or required condition. The inspector did not attempt a determination whether other systems tested using H.P.6.27 may have been left in off-normal conditions, but did determine these other systems are not associated with containment integrity. Since it is not evident from H.P.6.27 that system conditions may be altered, other existing administrative controls, to assure proper return to service of safety-related components, were not recognized as necessary. On three other occasions in early 1978, when maintenance work was performed on purge bypass system filters, their proper return to service was accomplished under controls provided by use of an Equipment Outage Request (EOR) form. Procedure H.P.6.27 does provide some degree of administrative control by its requirements that the shift supervisor approve the activity, and that the shift supervisor and plant Health Physicist sign the completed procedure to indicate their notification and approval, respectively. This control was not properly utilized, however, since the notification, approval and signoffs were not completed for the testing of the purge bypass filters under H.P.6.27 on April 4-7, 1978. It is a requirement of Technical Specification 6.8.1.c that procedures for surveillance and testing of safety-related equipment be implemented. The licensee's failure to properly complete the requirements of H.P.6.27 is an item of noncompliance with the referenced Technical Specifications, and is an Infraction.

Second, the Containment Integrity Checklist, C.L.3.3, is deficient. As noted above, penetration 4.a is identified only with respect to verification that the test tap between the manual isolation valves is properly closed and sealed. The purge bypass line manual isolation valves had not been numbered and were not included on Checklist C.L.3.3. There is little basis for assuming these isolation valves have ever been examined after any previous refueling outage, including that of 1978, despite their physical proximity to the test tap. It is known from the record that Checklist C.L.3.3 was completed on May 16, 1979, after a brief cold shutdown, and the open condition of the bypass isolation valves was not recognized, though the test tap was checked. It is a requirement of Technical Specification 3.6.3 that an administrative check after refueling confirms the locked-closed condition of all manual containment isolation valves. The licensee's failure after each of his previous refueling outages to make the required position is an item of noncompliance with Technical Specification 3.6.3, and is an Infraction.

The inspector will continue to follow the licensee's review and corrective actions in this matter during future inspections.

3. I.E. Bulletin

This inspection included a review of licensee action on I.E. Bulletin 79-11, concerning faulty overcurrent trip devices in selected ESF circuit breakers. The licensee's review, as documented by his letter dated July 3, 1979, established none of the subject circuit breakers are in use or in spares for safety-related systems at Palisades. This item is closed.

No items of noncompliance or deviations were identified.

4. Maintenance Activities

Selected activities of the plant Maintenance Department were reviewed or directly observed by the inspector during September, 1979. These specifically included activities relating to vessel head removal for refueling: stud detensioning; stud removal, identification, and storage; and miscellaneous related functions.

The inspector verified proper administrative approvals were obtained, procedures were present and in use at the jobsite, qualified personnel were utilized, and appropriate radiation protection coverage was provided. It was noted that ALARA considerations for personnel radiation exposure contributed heavily to a decision to utilize mechanical rather than manual methods for stud removal.

Adherence to general requirements for crane use and control was also observed.

No items of noncompliance or deviations were identified.

5. Procedures

The following procedures were reviewed with respect to their technical content and consistency with Technical Specifications requirements:

- a. RVG-M-2, "Removal of Reactor Vessel Head"
- b. PCS-I-13, "Refueling Surveillance Procedure-Reactor Cooling Flow Channels Calibration"
- c. ESS-I-3, "Safety Injection Bottle Level Calibration - LT and LIA-0365, 0368, 0372 and 0374"

No items of noncompliance or deviations were identified.

6. Cleanliness

Several work area tours were conducted during this inspection for observation of general cleanliness, including combustibile materials

control, proper collection of debris, prevention or correction of such potentially hazardous conditions as wet or oily work areas, and control of tools and equipment to prevent excess clutter. Due to the continuing disassembly of a number of major components for maintenance or modification, laydown space is becoming progressively more crowded, particularly on the 649-foot level of the containment and in the turbine building. Also, the large number of outage personnel working in radiation access-controlled areas has resulted in the generation of significantly greater-than-normal quantities of potentially contaminated wastes. These matters will be examined further during a future inspection.

No items of noncompliance or deviations were identified.

7. Management Interview

A management interview (attended as noted in Paragraph 1) concerning this inspection was conducted on October 2, 1979. The following were discussed:

- a. The inspector summarized the scope and findings of the inspection as documented in these "Details".
- b. The noncompliance items were specifically discussed, with primary focus on the Violation item (Paragraph 2).