

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/85-04(DRSS)

Docket No. 50-255

License No. DRP-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: January 29-31, 1985

*P. C. Lovendale*  
Inspectors: P. C. Lovendale

2/20/85  
Date

*N. A. Nicholson*  
N. A. Nicholson

2/20/85  
Date

*L. R. Greger*  
Approved By: L. R. Greger, Chief  
Facilities Radiation Protection  
Section

2/20/85  
Date

Inspection Summary

Inspection on January 29-31, 1985 (Report No. 50-255/85-04(DRSS))

Areas Inspected: Routine, unannounced inspection of the radiation protection program, including: organization changes, qualifications, ALARA program, open items, and an allegation related to a resin transfer in 1983. The inspection involved 44 inspector-hours onsite by two NRC inspectors.

Results: Of the five areas inspected, no violations or deviations were identified in four areas. One violation was identified in one area (failure to perform a safety evaluation of a change made to the liquid radioactive waste system - Section 3).

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## DETAILS

### 1. Persons Contacted

- \*C. Axtell, Health Physics Superintendent
- \*W. Beckman, Radiological Services Manager
- \*N. Campbell, Senior Health Physicist
  - R. DeLong, Senior Health Physicist
  - G. Ellis, Radiation Protection Supervisor
  - R. English, Corporate Health Physicist
- \*D. Fitzgibbons, Licensing Engineer
  - M. Grogan, RMC Supervisor
- \*L. Kenaga, Staff Health Physicist
- \*J. Lewis, Plant Technical Director
  - M. Mennuci, General Health Physicist
  - T. Neal, Senior Health Physicist
- \*D. Rogers, Plant Licensing Administrator
  - J. Wilson, Radiation Protection Supervisor
- \*E. Swanson, NRC Senior Resident Inspector

The inspectors also contacted other licensee employees and contractors including radiation protection technicians and members of the engineering staff.

\*Denotes those present at the exit meeting.

### 2. General

This inspection, which began at 11:00 a.m. on January 29, 1985, was conducted to review radiation protection related matters, including organization changes and their effect on the radiation protection program, qualifications and training, ALARA program implementation, and open items. Also, an allegation concerning a resin transfer operation that occurred in 1983 was reviewed.

### 3. Licensee Actions on Previous Inspection Findings

(Open) Open Item (255/84-22-01): Implementation of the radiological incident reporting (RIR) system needs significant improvement. Although the RIR records system has been improved, needed minor program revisions have not been made and the system is still underutilized. This matter was discussed during the exit meeting.

(Closed) Open Item (255/84-22-04): Filter elements removed from filters F-57 A, B, and C. During a resin sluicing operation, resin entered the equipment drain tank. Because the elements had been removed from filters F-57 A, B, and C, resin was pumped from the equipment drain tank to the clean radwaste system. Although no documentation of the modification could be found, licensee personnel speculated that the filter elements were removed sometime in the late 1970's, because of the high radiation fields created by the filters or because of design deficiency which resulted in frequent filter clogging. The fact that the filter elements

had been removed was documented in an August 1984 Nuclear Activities Plant Organization (NAPO) report (P84-104) concerning the resin sluicing incident, but no action has been taken to date by the licensee to determine why the filters had been removed and whether they should be reinstalled. Inasmuch as the filters are described in the FSAR, a safety review per 10 CFR 50.59 should have been performed before removing the filter elements. No evidence of such review could be found, nor did the licensee report completion of such a review to the NRC.

Failure to conduct a review to determine the safety significance of removing the elements from filters F-57 A, B, and C is considered to be a violation of 10 CFR 50.59 which requires that a safety evaluation be conducted to determine if a proposed change to a system as described in the FSAR involves an unreviewed safety question. (255/85-04-01)

#### 4. Organization and Management Controls

The inspectors reviewed the licensee's organization and management controls for the radiation protection and radwaste programs, including changes in the organizational structure and staffing, effectiveness of procedures and other management techniques used to implement these programs, and experience concerning self-identification of program weaknesses.

A major reorganization of the plant took place in November 1984. As part of this reorganization, the Chemistry and Health Physics Superintendent was terminated and the corporate health physics organization disbanded. Many of the functions and personnel previously associated with the corporate health physics office were moved to the Palisades plant under the newly created position of Radiological Services Manager. The Radiological Services Manager reports directly to the Plant General Manager. The Health Physics Superintendent (Health Physics Operations Supervisor), two Staff Health Physicists (Health Physics Support-Services Supervisor and Health Physics-Technical Supervisor), a Senior Health Physicist (Radioactive Material Control Administrator), and the Corporate Health Physicist all report to the Radiological Services Manager.

The Health Physics Operations Group, which includes four radiation safety supervisors, the ALARA Coordinator, and sixteen radiation protection technicians, is responsible for plant surveys, respiratory protection, instrumentation, and the ALARA program. The Health Physics Support Group, which includes three health physicists, four radiation protection technicians, and two clerks, is responsible for dosimetry, outage planning and emergency preparedness. The Radioactive Material Control Group, which includes two health physicists, two RMC supervisors, and four technicians, is responsible for radioactive material shipping and plant effluents. These three groups are all located at the plant site.

The Health Physics Support-Technical Group, which includes two health physicists and four engineers, is responsible for health physics and emergency planning technical support for both Palisades and Big Rock Point plants. The Corporate Health Physicist's primary responsibility

is the corporate dosimetry laboratory. His staff includes two nuclear operations analysts and two engineering technicians. Both of these groups are currently located at the corporate office, but may be moved to the Palisades site in the future.

The number of contracted radiation protection technicians onsite has been reduced from a high during the maintenance outage of seventeen to five. The need for the remaining five technicians is currently under review. Licensee management stated that the allotted plant staff of radiation protection technicians should be able to handle the work load during normal plant operations. However, a new initiative at the plant to reduce the large number of outstanding maintenance orders by supplementing the plant maintenance staff with contractors may cause retention of a few contracted radiation protection technicians.

In an attempt to evaluate the effect of the new organization on the licensee's established radiation protection program, the inspectors interviewed several plant workers, including radiation protection technicians, health physicists, and engineers. Although several of these workers expressed concern over the loss of the previous Chemistry and Health Physics Superintendent and the termination of the remaining contracted radiation protection technicians, none of the workers interviewed could provide any specific examples showing the new management had caused a weakening of the radiation safety program. Most comments provided by those interviewed were complimentary of the new management's actions to improve the radiation protection program's effectiveness. In addition, the inspectors did not observe any problems during the inspection that would indicate that the radiation protection program was not functioning smoothly.

No violations or deviations were identified.

## 5. Qualifications

The inspectors reviewed the qualifications of personnel assigned to the licensee's radiation protection, radwaste, and transportation programs, including: changes in responsibilities, policies, goals, programs, and methods; and qualifications of newly hired, promoted, or reassigned radiation protection personnel.

The Health Physics Superintendent has been named as the plant Radiation Protection Manager (RPM) as defined by Regulatory Guide 1.8. This individual's work experience includes over twenty years working in radiation protection and chemistry at the Big Rock Point plant and short assignments at the Midland plant and at the corporate office. He served as the RPM at the Big Rock Point plant for many years, and meets the qualification criteria of Regulatory Guide 1.8 for the plant RPM.

The Radiological Services Manager has had Navy nuclear experience; he was assigned to the Midland plant as the Chemistry and Health Physics Superintendent for about four years, and as the Training Supervisor at Midland for about one year. He assumed his current position in November 1984.

No violations or deviations were identified.

6. Maintaining Occupational Exposures ALARA

The inspectors reviewed the ALARA program as implemented under the new organizational structure. This review included ALARA considerations for maintenance and refueling outages; worker involvement in the ALARA program; and establishment of goals and objectives, and effectiveness in meeting them.

The ALARA program and corresponding management support appear to have been strengthened since the reorganization near the end of 1984, including: the appointment of a dedicated, full time ALARA coordinator who was relieved of duty HP responsibilities in early January 1985; substantive commitments to INPO that should improve the ALARA program; improvements in the establishment of ALARA goals and policies; and increased efforts to improve job planning. Radiation protection management indicated their support of the ALARA program and stated that they observed plant management support of the program also.

Administrative Procedure 7.02, ALARA Program is being revised to reflect commitments to INPO and plant goals which should upgrade the program and provide continuity. ALARA reviews conducted for radiation work permits in accordance with Administrative Procedure 7.02 were selectively reviewed. Although these reviews were poorly documented, no significant problems were noted. The ALARA coordinator stated that an ALARA review checkoff sheet will be initiated by March 1, 1985. This is viewed as a positive step toward maintaining consistency and verifying that applicable aspects of each job receive the needed review.

Minutes of the 1984 ALARA Committee meetings were reviewed. The committee met quarterly and reviewed topics in accordance with Administrative Procedure 7.02. No problems were noted.

Both the ALARA Coordinator and the Radiological Services Manager indicated a need for a better working relationship with the Planning Department to improve prejob planning, including: routine advance planning over a longer period of time; ALARA staff attendance at pre-outage meetings; and possible relocation of the ALARA staff closer to the planning staff.

No violations or deviations were identified.

7. Containment Entry at Power

The inspectors reviewed a January 12, 1985 entry into containment, while the reactor was at 20 percent power, to inspect and add oil to the primary coolant pumps. The entry was made in accordance with Procedure HP 2.6, Containment Entry with the Reactor Critical. An ALARA review was conducted using dose estimates and radiation protection guidelines generated as a result of a similar entry on June 24, 1983, and work area surveys conducted immediately before entry. A prejob briefing was held with involved personnel.

Instrument calibrations of neutron detectors used to perform containment surveys were reviewed; no problems were noted. However, licensee representatives indicated that neutron results, used as a basis for radiation protection practices during this job, may be conservative by as much as a factor of five based on the energy range of the Pu-Be calibration source in contrast to the energy range of the neutron spectrum at 20 percent reactor power. In the future, the licensee plans to have these instruments calibrated by a vendor using a more representative neutron energy range.

Worker exposures for this entry ranged from about 100 to 600 mrem gamma. The exact neutron exposures are not yet known, but based on survey data, the neutron contribution should be small. The licensee erroneously believed that their secondary TLDs, worn by the workers during the entry, could be used to determine neutron exposure. These TLDs have not been calibrated for neutrons. The general office TLDs worn by the workers can be used for neutron dose determinations and were sent to the corporate office dosimetry lab for evaluation on January 25, 1985. The need to improve the quality and timeliness of neutron assessments for containment entries during power operations was discussed during the exit meeting and will be reviewed during a future inspection. (255/85-04-02)

The plant staff indicated that future at-power containment entries are planned. The inspectors discussed this matter with licensee radiation protection staff members, including the need to correct those problems in containment which lead to the need for at-power entries. The frequency of these entries will be reviewed during a future inspection. (255/85-04-03)

No violations or deviations were identified.

8. TMI Action Plan Item II.B.3

Closeout of this item was awaiting completion of the hydrogen monitoring system. The hydrogen monitoring system's sample line from containment will also be used for containment atmosphere radioactivity sampling. As noted in Inspection Report No. 50-255/84-10(DRP), the hydrogen monitoring system is complete. Item II.B.3 is considered closed.

No violations or deviations were identified.

9. Allegation (RIII-84-A-0191)

One allegation concerning resin transfer operations in 1983 was received at the Region III office on December 28, 1984. During review of the allegation, the inspector interviewed radwaste operators and radiation protection personnel, and reviewed related procedures.

Allegation: Resin transfer operations were not conducted in accordance with the standard operating procedure. Specifically, a temporary procedure change was not obtained before manually unclogging the resin transfer hose, transferring resin in plastic bags, storing resin in unshielded drums, or using a shovel to level a cone of resin which formed in the cask. As a result, greatly increased external radiation exposures were

incurred by involved workers, and at least one worker was contaminated. The resin clog occurred because too dry a resin slurry was being used in an attempt to minimize radwaste generation, and documentation was falsified to show that licensee procedures were followed.

Discussion: The resin transfer operation referred to by the alleged involved transfer to a shipping cask from a plant storage tank. Water from the clean radioactive waste system is added to the resin to make a slurry capable of being pumped. The water must be removed from the shipping cask, therefore excessive water addition to the slurry is undesirable because it can prolong the transfer operation and create unnecessary liquid radwaste, both of which increase radiation exposures. Insufficient water addition also can result in increased time to complete the transfer operation and increased radiation exposures if line clogging or cone formation occurs. The licensee controls water addition to the resin based on visual observation of the resin slurry as it enters the cask.

According to the licensee supervisor of resin transfer operations, line clogging and cone formation occurred during a resin transfer operation in July 1983. The clogging occurred when the resin slurry was allowed to become too dry. According to the licensee supervisor, this occurred accidentally, due to insufficient monitoring of the slurry consistency at the cask. Since that occurrence, additional water has reportedly been used to preclude line clogging. According to the licensee supervisor, no further line clogging problems have occurred during resin transfer operations. Other licensee personnel were also contacted. They confirmed that problems experienced with line clogging had not recurred.

The resin transfer operating procedure (SOP 18) does not include specific operations necessary to recover from a clogged line. According to the licensee personnel interviewed, when the line clog occurred, corrective actions were evaluated with health physics personnel. The actions taken, including pounding on the flexible transfer hose to free the clog, collection of the resin which caused the clog in plastic bags and drums, and use of a shovel to level the resin cone formed in the cask, were reportedly reviewed in these evaluations. These actions appear to have been adequate from a procedural adherence perspective due to the nonrepetitive nature of the problem. Procedures are intended to guide licensee personnel in the performance of activities in order to ensure adequate management attention and safety considerations. In addition to the SOP, a radiation work permit (RWP) is used to control resin transfer operations. The RWP augments the SOP in providing safety guidance. The RWP for the July 1983 resin transfer operation shows that although increased radiation exposures were received, neither NRC exposure limits nor lower licensee administrative exposure limits were exceeded. There was no recollection by the personnel interviewed of any significant personal contaminations, other than contaminated protective clothing, occurring during these resin transfers.

No specific requirement was identified which would require the licensee to document line clogging during a resin transfer operation. In the absence of such a requirement, the issue of document falsification

appears to be without basis. It was noted that the personnel radiation exposures were recorded on the RWP. There does not appear to have been any attempt by the licensee to cover-up the occurrence.

The allegation was substantiated in that line clogging occurred during a resin transfer operation due to insufficient water in the resin slurry, a temporary procedure change was not issued to cover corrective activities which were not addressed in the SOP, and increased radiation exposures resulted from the incident. The allegations of intentional use of insufficient water and document falsification were not substantiated. It does not appear that a formal temporary procedure change was needed in this case because of the nonrepetitive nature of the problems incurred and the management review given the problem. Although increased radiation exposures occurred, no limits were exceeded.

Contrary to the information supplied by the alleger, only one occurrence of resin clogging during transfer operations was identified during 1983, and no overfilled cask incident was identified. Attempts to contact the alleger during the inspection for further information were unsuccessful. This matter will be reviewed further during a future inspection.

No violations or deviations were identified.

10. Exit Meeting

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on January 31, 1985. Further discussions were conducted by telephone on February 6, 1985. The inspectors summarized the scope and findings of the inspection. In response to certain matters discussed by the inspectors, the licensee:

- a. Acknowledged the violation for failure to conduct a safety evaluation required by 10 CFR 50.59. (Section 3)
- b. Stated that the RIR system would be fully functional by March 1, 1985, including completion of any needed training and procedure revision. (Section 3)
- c. Stated that the neutron exposure evaluations for workers entering the containment at power would be improved. (Section 7)