U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/93031(DRSS)

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, Michigan

Inspection Conducted: December 13-17, 1993

Inspectors: for T. Kozak
Senior Radiation Specialist — Date 1/5/94

for C. Cox
Radiation Specialist — Date 1/5/94

Approved By: James E. Foster for William G. Snell, Chief
Radiological Programs Section 2 — Date 1/5/94

Inspection Summary

Inspection on December 13-17, 1993 (Report No. 50-255/93031(DRSS))
Areas Inspected: Routine announced inspection of the radiation protection program, including: organization, management controls and training, failed fuel analysis, secondary chemistry, maintaining occupational exposures As-Low-As-Reasonably-Achievable (ALARA), and plant tours (IP 83750, 84750).
Results: No violations or deviations were identified. The licensee's radiation protection program appears to be generally effective in controlling radiological work and in protecting the public health and safety. General area housekeeping improved since the last inspection. Areas needing improvement included the resin transfer area, and in catch containments in the fuel pool cooling area and the safeguards rooms. Failed fuel analysis techniques improved from the previous operating cycle. Dose expended for the year was average for a pressurized water reactor.

DETAILS

1. Persons Contacted

Consumers Power Company

* D. Anderson, Nuclear Performance Assessment
* K. Barr, Nuclear Performance Assessment Department
* J. Beer, Radiation Protection Manager
* A. Clark, ALARA Program Coordinator
* P. Donnelly, Safety and Licensing Director
* M. Grogan, Radioactive Materials Shipping Supervisor
* K. Haas, Radiological Services Department Manager
* J. Hadl, Nuclear Performance Assessment Department
* J. Kuemin, Licensing Administrator
* D. Malone, Radiological Services Superintendent
* J. McElrath, Chemical Engineering Section Head
* M. Mennucci, Health Physics (HP) Technical Supervisor
* T. Neal, HP Support Superintendent
* K. Schneider, Radiation Work Permit (RWP) & Planning Supervisor
* G. Slade, Plant General Manager

Nuclear Regulatory Commission

* M. Parker, Senior Resident Inspector
  D. Passehl, Resident Inspector

The inspectors also interviewed other licensee and contractor personnel during the course of the inspection.

* Denotes those present at the exit meeting on December 17, 1993.

2. General

This inspection was conducted to review aspects of the licensee's radiation protection program. Included in this inspection was a follow-up of outstanding items in the areas of radiation protection and radioactive waste management. The inspection included tours of radiologically controlled areas, the auxiliary building and radioactive waste facilities, observations of licensee activities, a review of representative records and discussions with licensee personnel.

3. Organizational, Management Controls and Training (IP 83750)

The inspectors reviewed the licensee's organization and management controls for the radiation protection program including: organizational structure, staffing, delineation of authority and management techniques used to implement the program.

A reorganization of the Radiological Services Department was planned to be implemented in early 1994. The main goal of the reorganization is to

consolidate and strengthen ALARA support. Plans were to relocate the ALARA coordinator under the Radiological Services Superintendent who is also responsible for oversight of the radiation protection technicians and radiation work permit generation. The licensee feels that this reorganization will provide better service to the plant since the three primary groups within radiation protection that are involved with production activities will be under the same supervisor.

The Nuclear Performance Assessment Department recently added a team leader position for each of the seven functional areas that are assessed. The inspectors interviewed the radiation protection team leader and found her to be appropriately qualified for the position.

The Chemistry Department Superintendent was recently replaced. The inspectors interviewed the new Superintendent and found her to be appropriately qualified. The effect of the various organizational changes will be assessed during future inspections.

No violations or deviations were identified.

4. Failed Fuel Analysis (IP 83750)

The inspectors reviewed the status of the failed fuel response plan described in NRC Inspection Report No. 50-255/93020(DRP). Most of the action items were completed prior to the startup.

The program to monitor fuel cycle 11 primary chemistry for failed fuel indications was reviewed. The licensee has improved their ability to detect failed fuel through analysis of several new parameters, most noteworthy of which is a fissions per second plot. This plot is performed on a daily basis and compares the yield of several iodines produced as fission products to their decay constant. A small slope change over time would be indicative of a small fuel leak while an order of magnitude change would indicate a larger fuel failure. To check the validity of the fissions per second plot, the licensee plotted fuel cycle 10 data and an order of magnitude change in the slope of the plot was noted during the fuel cycle. This would have given the licensee a much better indication that a fuel element had failed during the past cycle.

Another change in data analysis was that the licensee was conducting monthly meetings with chemistry, radiation protection, operations, and systems engineering to review plant chemistry data and fuel performance. Such an inter-disciplinary review was lacking during fuel cycle 10 and should help improve communications between departments.

The inspectors reviewed primary chemistry parameters at the time of the inspection. The dose equivalent iodine was approximately 0.022 microcuries/gram (814 Bq/gm) which was well below the Technical Specification limit that requires the specific activity of the primary coolant not exceed one microcurie/gram.

No violations or deviations were identified.

5. Secondary Chemistry (IP 84750)

The inspectors reviewed a deviation report generated by the licensee which identified several problems regarding the secondary system chemistry sampling panel (C-42). Several nuisance alarms regarding trouble with the panel were heard over the plant paging system during the inspection. A discussion with chemistry personnel indicated that a root cause analysis of the problems associated with the C-42 panel was completed and an action plan was developed to reduce the backlog of work orders and fix the associated problems with the panel. Action plan items included holding meetings with maintenance, operations, and system engineering to set priorities of the work orders and bringing in a system expert to review the planned fixes to determine if they would be effective. Progress in this area will be reviewed during a future inspection.

No violations or deviations were identified.

6. Maintaining Occupational Exposure As Low As Reasonably Achievable (ALARA)

The inspectors reviewed the licensee's program for maintaining occupational exposures ALARA, including: the source term reduction program; ALARA group staffing and qualification; changes in ALARA policy and procedures, and their implementation; ALARA considerations for planned maintenance and refueling outages; and worker awareness and involvement in the ALARA program.

As mentioned in Section 3, the licensee was planning to relocate the ALARA coordinator to the Radiological Services Department Superintendent's area. The inspectors discussed with licensee personnel the challenges that the plant has in the ALARA program. Overall dose expended during the year was approximately 275 person-rem (2.75 person-Sieverts) which is about average for a pressurized water reactor. Improvement is still needed in this area. The extent to which the Maintenance, Engineering, and Operations Departments are involved in the ALARA program will be determined during future inspections.

No violations or deviations were identified.

7. Plant Tours (IP 83750)

The inspectors toured the licensee's facility to determine the effect radiological conditions had on day to day job performance in the auxiliary building. In general, all safety related equipment was readily accessible. During the inspection, a hot spot in the West Safeguards Room was shielded which allowed removal of the high radiation area posting at the door and allowed for easier access to the area. Recent efforts to improve cleanliness have, for the most part, been effective. There were several pumps with seal leaks that could

potentially lead to a spread of contamination. Examples include the spent resin transfer pump and the Safety Injection Refueling Water recirculation pump. The spent fuel pool cooling and the safeguards areas had several catch containments to contain water from a number of small leaks that had developed. In many cases, the leaks had self-sealed. However, the pumps and catches usually had boric acid crystals in and/or around them which could have easily been cleaned up. Developments in this area will be followed during subsequent inspections.

No violations or deviations were identified.

8. Exit Meeting

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on December 17, 1993, to discuss the scope and findings of the inspection.

During the exit interview, the inspectors discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. Licensee representatives did not identify any such documents or processes as proprietary. The inspectors specifically discussed the following items at the meeting:

- The need to improve housekeeping in the resin transfer area and inside catch containments in the fuel pool cooling area and the safeguards rooms.

- The need to continue efforts to further reduce radiation dose expended at the facility.