

December 6, 2000

Mr. Thomas J. Palmisano
Site Vice President and General Manager
Palisades Nuclear Generating Plant
Consumers Energy Company
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES - NRC INSPECTION REPORT 50-255/00-18(DRS)

Dear Mr. Palmisano:

On November 17, 2000, the NRC completed a routine inspection at your Palisades Nuclear Generating Plant. The enclosed report presents the results of that inspection. The results were discussed on November 17, 2000, with Mr. S. Wawro and other members of your staff.

The inspection was an examination of activities conducted under your license as they relate to radiation safety and to compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

No findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the *Publicly Available Records (PARS) component of NRC's document system (ADAMS)*. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

T. Palmisano

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We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

Gary L. Shear, Chief
Plant Support Branch
Division of Reactor Safety

Docket No. 50-255
License No. DPR-20

Enclosure: Inspection Report 50-255/00-18(DRS)

cc w/encl: R. Fenech, Senior Vice President, Nuclear
Fossil and Hydro Operations
N. Haskell, Director, Licensing and Performance Assessment
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Department of Attorney General (MI)
Emergency Management Division, MI Department
of State Police

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N. Haskell, Director, Licensing and Performance Assessment
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Department of Attorney General (MI)
Emergency Management Division, MI Department
of State Police

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-255
License No: DPR-20

Report No: 50-255/00-18(DRS)

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

Facility: Palisades Nuclear Generating Plant

Location: 27780 Blue Star Memorial Highway
Covert, MI 49043-9530

Dates: November 13-17, 2000

Inspector: D. Nelson, Radiation Specialist

Approved by: Gary L. Shear, Chief
Plant Support Branch
Division of Reactor Safety

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas) reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events ● Mitigating Systems ● Barrier Integrity ● Emergency Preparedness	● Occupational ● Public	● Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

SUMMARY OF FINDINGS

IR 05000255-00-18(DRS); on 11/13-11/17/00, Consumers Energy Company, Palisades Nuclear Generating Plant.

The inspection was conducted by a regional radiation specialist. No findings of significance were identified.

Report Details

Summary of Plant Status: The Unit was at full power during the inspection period.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas

.1 Plant Walkdowns and Radiological Boundary Verifications

a. Inspection Scope

The inspector conducted walkdowns of the radiologically controlled area to verify the adequacy of radiological boundaries and postings. Specifically, the inspector walked down several radiologically significant work area boundaries (high and locked high radiation areas) in the Auxiliary Building, the Turbine Building, and the spent fuel pool. In addition, confirmatory radiation measurements were performed to verify that access to these areas and to selected radiation areas were properly posted and controlled in accordance with 10 CFR 20, licensee procedures, and technical specifications.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls

.1 ALARA Planning

a. Inspection Scope

The inspector reviewed the station's collective exposure histories for 1996 to present, exposure results for the 1999 refueling outage (REFOUT99) that began in October 1999, and the forced outages during year 2000. The inspector reviewed the exposure data and the station's three-year rolling average exposure information and compared it with national pressurized water reactor industry data.

b. Findings

No findings of significance were identified.

.2 Job Site Inspections and ALARA Controls

a. Inspection Scope

The inspector selected the following high exposure or high radiation area activities performed during REFOUT99 and evaluated the licensee's use of ALARA controls:

- a. Reactor Head Disassembly and Move to Storage Stand;
- b. Reactor Head Reassembly and Refueling Closeout Activities;
- c. Remove and Install the ICI Flanges;
- d. Scaffold Work in Containment; and
- e. Remove and Replace Primary Coolant Pump Motor P50D.

The inspector evaluated the licensee's engineering controls for each activity and interviewed members of the ALARA planning group to verify that the controls were consistent with those specified in the ALARA plans.

b. Findings

No findings of significance were identified.

.3 Source Term Reduction and Control

a. Inspection Scope

The inspector reviewed the status of the licensee's source term reduction program, focusing on those initiatives taken for the outage which included shutdown chemistry controls (i.e., early boration/hydrogen peroxide addition), hydrolazing and other decontamination work, and installation of permanent and temporary shielding. The inspector also evaluated other ongoing source term reduction strategies, such as water chemistry control and hot spot reduction initiatives, and verified that a viable source term control program was in place. The inspector also performed surveys within the radiologically controlled area to verify the accuracy of the licensee's records of identified hot spots and to identify any other significant unidentified sources of radiation exposure.

b. Findings

No findings of significance were identified.

.4 Radiological Work Planning

a. Inspection Scope

The inspector selected the following REFOUT99 outage job activities that exceeded five person-rem or were conducted in high radiation areas and assessed the adequacy of the radiological controls and work planning:

- a. Reactor Head Disassembly and Move to Storage Stand;
- b. Reactor Head Reassembly and Refueling Closeout Activities;
- c. Remove and Install the ICI Flanges;
- d. Scaffold Work in Containment; and
- e. Remove and Replace Primary Coolant Pump Motor P50D.

For each job activity, the inspector reviewed ALARA evaluations including initial reviews, in-progress reviews and post-job reviews, and associated dose mitigation techniques and evaluated the licensee's exposure estimates and performance. The inspector also

assessed the integration of ALARA requirements into work packages to evaluate the licensee's communication of radiological work controls.

b. Findings

No findings of significance were identified.

.5 Verification of Exposure Goals and Exposure Tracking System

a. Inspection Scope

The inspector reviewed the methodology and assumptions used for REFOUT99 exposure estimates and exposure goals and compared job dose rate and man-hour estimates for accuracy. The inspector verified that job dose history files and dose reductions anticipated through lessons learned were appropriately used to forecast outage doses. The inspector also reviewed the licensee's exposure tracking system to determine if the level of exposure tracking detail, exposure report timeliness and exposure report distribution was sufficient to support control of collective exposures. The inspector verified that the licensee's dose estimates for the outage were reasonably accurate and confirmed that no outage jobs greater than five person rem exceeded respective dose estimates by more than 50 percent.

b. Findings

No findings of significance were identified.

.6 Declared Pregnant Workers

a. Inspection Scope

The inspector determined if there had been any declared pregnant workers during the current assessment period. For those individuals, the inspector reviewed the exposure results and monitoring controls employed by the licensee with respect to the requirements contained in 10 CFR Part 20 and the licensee's procedures.

b. Findings

No findings of significance were identified.

.7 Identification and Resolution of Problems

a. Inspection Scope

The inspector evaluated the effectiveness of the self-assessment process to identify, characterize, and prioritize problems and verified that REFOUT99 related ALARA issues were adequately addressed and resulted in improved dose performance. The inspector also reviewed radiation protection assessments, Nuclear Performance Assessment Department (NPAD) field monitoring reports and condition reports (CR) to assess the adequacy of the licensee's ability to identify problems.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA6 Management Meetings

Exit Meeting Summary

The inspector presented the inspection results to Mr. Wawro, Director of Staff, and other members of licensee management at the conclusion of the inspection on November 17, 2000. The licensee acknowledged the findings and identified no proprietary information.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Brown, C&RS, Manager
J. Beer, C&RS, Supervisor
J. Geyer, C&RS, Supervisor
N. Haskell, Licensing Director
S. King, Licensing
D. Malone, Engineering Director
M. Shymanski, ALARA Coordinator
G. Szczotka, NPAD, Manager
S. Wawro, Director of Staff

NRC

J. Lennartz, Senior Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
C&RS	Chemistry and Radiological Services
CFR	Code of Federal Regulations
CR	Condition Report
NEI	Nuclear Energy Institute
NPAD	Nuclear Performance Assessment Department
REFOUT99	1999 Refueling Outage

LIST OF DOCUMENTS REVIEWED

Station Procedures

Proc No 7.04 (Revision 17)	Radiation Dosimetry
HP 2.28 (Revision 22)	Primary Dosimetry

ALARA Reviews with Associated RWPs

ALARA Review # 938r1	Disassemble Reactor Mead and Move to Storage Stand
ALARA Review # 943r1	Reassemble Reactor Head and Refueling Close-out Activities
ALARA Review # 1004	Scaffold Work in Containment
ALARA Review # 1006	Remove and Replace Primary Coolant Pump Motor P50D
ALARA Review # 1010	Remove and Install the ICI Flanges

Nuclear Performance Assessment Department Field Monitoring (FM) Reports

FM-P-00-007 (2/15/00)
FM-P-00-014 (3/16/00)
FM-P-00-021 (4/3/00)
FM-P-00-026 (4/7/00)
FM-P-00-035 (6/2/00)
FM-P-00-042 (7/6/00)
FM-P-00-057 (9/11/00)

Condition Reports

CPAL # 0002829, CPAL # 0003326, CPAL # 0003327

Other Documents

Root Cause Analysis of an Adverse Trend with ALARA and Work Planning and RWP Processes, November 2, 2000

REFOUT99 P50D Event Timeline

1999 Refueling RWP Projections

Organization Chart, Outage and Non-outage

Fetal Protection Program Dose Summary, November 14, 2000

USNRC Inspection Information Package, ALARA Planning and Controls, includes 1999 Refueling Outage Report, year 2000 RWP Data, Palisades Nuclear Plant Dose Reduction Action Plan, year 2000 Forced Outage Dose Data, REFOUT2001 Milestones, REFOUT2001 ALARA Plan, and year 2000 Dose Year to Date