March 14, 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: NRC RADIATION PROTECTION INSPECTION REPORT
50-255/2000004(DRS)

Dear Mr. Palmisano:

On February 18, 2000, the NRC completed an inspection at your Palisades Nuclear Generating Plant. The purpose of the inspection was to review the radiological effluent and radiological environmental monitoring programs. The enclosed report presents the results of that inspection. No violations of NRC requirements were identified.

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 work in progress, and interviews with personnel.

We concluded that your radiological effluent and radiological environmental monitoring programs were well-implemented. We also concluded that effluent monitors were calibrated as required. However, ongoing scheduling problems and practices routinely extended effluent monitor calibrations into the 25 percent grace period, which did not meet management expectations.

In accordance with 10 CFR 2.790 of the NRC's "Rules and Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

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

Sincerely,

***/RA/***

Wayne J. Slawinski, Acting Chief
Plant Support Branch

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

Enclosure: Inspection Report 50-255/2000004(DRS)

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

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

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Wayne J. Slawinski, Acting Chief
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of State Police

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| DATE | 03/14/00 | | 03/14/00 | | 03/14/00 | | | |

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REGION III

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|---|---|
| Docket No: | 50-255 |
| License No: | DPR-20 |
| Report No: | 50-255/2000004(DRS) |
| Licensee: | Consumers Energy Company |
| Facility: | Palisades Nuclear Generating Plant |
| Location: | 27780 Blue Star Memorial Highway<br>Covert, MI 49043-9530 |
| Dates: | February 14-18, 2000 |
| Inspector: | D. Nelson, Radiation Specialist<br>S. Orth, Senior Radiation Specialist |
| Approved by: | Wayne J. Slawinski, Acting Chief, Plant Support Branch<br>Division of Reactor Safety |

## EXECUTIVE SUMMARY

Palisades Nuclear Generating Plant
NRC Inspection Report 50-255/2000004(DRS)

This announced inspection included a review of various aspects of the licensee's radiation protection (RP) program. Specifically, the following areas were reviewed:

- Radiological Effluent Monitoring Program
- Radiological Environmental Monitoring Program (REMP)

This inspection covered a 5-day period concluding on February 18, 2000.

The following conclusions were reached in these areas:

- The REMP program was well implemented, and monitoring results indicated that there was no discernable environmental impact from plant operations (Section R1.1).

- Effluent monitors were operational, calibrated, and had set points established in compliance with the Offsite Dose Calculation Manual (ODCM) (Section R2.1).

- A significant percentage of process monitors had been calibrated while in their 25 percent grace period, which did not meet management expectations (Section R2.1).

- The 1998 and 1999 Nuclear Performance Assessment Department (NPAD) audits of the radiological effluent monitoring program and REMP, and the 1996 and 1998 audits of the Meteorological Monitoring Program were comprehensive and effectively identified areas in need of improvement (Section R7.1).

- Condition Reports related to the REMP and effluent monitoring programs documented issues that were minor in nature. The corrective actions taken were appropriate (Section R7.2).

- Surveillances of the meteorological data collection equipment met the requirements of the ODCM and the Meteorological Monitoring Plan. System availability was excellent (Section R7.3).

## Report Details

## IV. Plant Support

### R1 Radiological Protection and Chemistry Controls

R1.1 Implementation of the Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope (84750)

The inspector reviewed the 1998 Annual Radiological Environmental Operating Report, the 1998 Annual Radioactive Effluent Release and Waste Disposal Report, and the Offsite Dose Calculation Manual (ODCM). The inspector also reviewed 1999 focus area self-assessments of the radiological effluent monitoring and REMP programs. The inspector observed the collection of air particulate/iodine air samples in the field, and interviewed various plant staff regarding the operability and materiel condition of the sampling equipment and the implementation of the REMP.

b. Observations and Findings

The inspector reviewed four self-assessments of the radiological effluent monitoring and REMP programs. Three of the assessments focused on specific aspects of these programs and one reviewed findings from previous audits, assessments and NRC inspections. In general, the auditors concluded that the radiological effluent program and REMP had been effectively implemented. However, the assessments identified some deficiencies in the implementation of the ODCM, and one assessment found that the service water monitor alert and high alarms were non-conservatively set since 1992. Upon discovery, a condition report was written to address the issue (CPAL0000275), the monitor was declared inoperable, and the setpoints were appropriately reestablished. The licensee determined that the non-conservative setpoints were not safety significant since the service water system effluent was continuously monitored by the common plant liquid discharge canal monitor, and routine sampling showed no measurable activity in the service water since 1992. Also, the assessments concluded that all findings from previous audits and assessments had been addressed effectively, except that process monitor calibrations continued to be extended into the grace period (Section R2.1).

The inspector noted during field collection of air particulate/iodine samples that the collector was well trained in procedure number HP 10.10 “Palisades Radiological Environmental Program Sample Collection and Shipment,” Revision 5, November 9, 1999, and was very knowledgeable of appropriate sampling principles. The inspector also noted that the collector properly tested the air sampling train for leakage and labeled and packaged the samples for shipment to the vendor analytic laboratory consistent with good practices. The inspector noted that the material condition of the air sample pumps was generally very good, and the sample collector indicated that the availability of the samplers during 1999 had been excellent. The inspector determined that the REMP sample collector was sufficiently knowledgeable of sampling

requirements, equipment and transport, and no operability or materiel condition issues regarding the sampling equipment were identified.

The inspector verified that the 1998 Annual Radiological Environmental Operating Report was submitted in accordance with NRC requirements, and that the report contained the required information as prescribed by the ODCM. The report noted that almost all of the required samples had been collected. On those few occasions when air samples had not been collected, the problem was the result of damaged filter media. There were no modifications to the REMP in 1998, and the procedures used remained unchanged. Data recovery for meteorological measurements was excellent (greater than 99 percent).

The REMP program included the collection and analysis of air, water, vegetation, fish, and bottom and shoreline river sediments. Thermoluminescence dosimeters (TLD) were used to measure direct radiation and were exchanged quarterly. The results from the REMP sampling and analyses, including the analyses of supplemental onsite and offsite groundwater wells, indicated that plant operations did not have a discernable radiological impact on the environment.

The 1998 Annual Radioactive Effluent Release Report indicated that there were four radioactive liquid discharges during 1998. Neither the liquid releases nor the gaseous and particulate releases came close to approaching the dose limits specified in the ODCM.

The inspector reviewed the REMP program interlaboratory cross-check program data for the licensee's environmental sample analysis vendor laboratory. The inspector reviewed the 1998 results, as described in the 1998 Annual Radiological Environmental Monitoring Report, and the reported results for the 1$^{st}$, 2$^{nd}$, and 3$^{rd}$ quarters of 1999. The reviews indicated that the vendor laboratory results were all within the acceptance criteria for the known values.

During 1999, the licensee made four revisions (Revisions 8, 9A, 13 and 14) to the ODCM. All the changes were administrative in nature and editorial in content. The inspector reviewed the 10 CFR 50.59 safety reviews performed for the revisions and determined that the reviews met regulatory requirements as well as the licensee's procedural requirements.

c. Conclusions

The REMP program was well implemented, and the 1998 and 1999 data demonstrated that there was no discernable environmental impact from plant operations. Assessments of the radiological effluent monitoring program and REMP determined that both programs were effectively implemented.

## R2 Status of Radiation Protection and Chemistry Facilities and Equipment

R2.1 Process and Effluent Radiation Monitors

a. Inspection Scope (84750)

The inspector reviewed the 1998 and 1999 records to determine if process radiation monitors were operational with their alarm/trip set points properly set, and had been calibrated per the requirements of the ODCM. The individual responsible for the radiological effluent monitoring program and the REMP (RETS/REMP Analyst) was interviewed by the inspector. Also, a walkdown of the gaseous radwaste system was conducted and the collection of a sample from the T 101 waste gas storage tank was observed.

b. Observations and Findings

The inspector determined that the Waste Gas Holdup System (WGHS) Noble Gas Activity Monitor (RIA 1113), Condenser Evacuation System Monitor (RIA 0631), Stack Gas Effluent System (SGES) Noble Gas Activity Monitor (RIA 2326), SGES Iodine/Particulate/Sampler/Monitor (RIA 2325), Steam Generator Blowdown Vent System Noble Gas Activity Monitor (RIA 2320), Main Steam Safety and Dump Valve Discharge Line Gross Gamma Activity Monitor (RIA 2323 and 2324), Service Water System Effluent Line Monitor (RIA 0833), Liquid Radwaste Effluent Line Monitor (RIA 1049), Steam Generator Blowdown Effluent Line Monitor (RIA 0707), and Turbine Building Sumps Effluent Line Monitor (RIA 5211) had been operational per the requirements of the ODCM during 1998 and 1999. The inspector also noted that the effluent monitors had been calibrated within the time constraints of the ODCM and that the setpoints were properly set for all but the RIA 0833 Monitor (Section R1.1).

The inspector noted that approximately 50 percent of the effluent monitors had entered their 25 percent grace period before being calibrated. The RETS/REMP Analyst indicated that the monitors had typically been scheduled to be calibrated the week before they entered the grace period; however, the calibrations had periodically been delayed a week due to scheduling conflicts. On several occasions, the calibrations had been delayed for longer periods due to the configuration of the plant. The inspector noted that this problem was initially identified during a 1999 Nuclear Performance Assessment Department (NPAD) audit, and a recent self-assessment found that the problem continued. As a result, a condition report (CPAL0000338) was issued. While the calibration of process monitors during grace periods did not violate the requirements of the ODCM nor was it safety issue, the practice did not meet management expectations because the calibrations were not intended to be extended routinely.

In CPAL9901483, the licensee reported that the Stack Gas Monitor iodine cartridge/particulate filter assembly had been reinstalled improperly and significant in-leakage had occurred for approximately one week during operation. The result was lowered than expected iodine and particulate activity count rates. The RETS/REMP Analyst noted the reduced count rates and after a few days of trending the count rates had the monitor declared inoperable. Since there were other monitors available to

measure radioactivity in the plant's gaseous effluents, the problem did not represent a safety issue. The Analyst's questioning attitude and actions during the episode demonstrated good oversight of the radiological effluent program.

The inspectors performed a walk down of the gaseous radwaste system, observed the waste gas control panels, the waste gas storage tanks and the waste gas monitors. The material condition of the panel and monitors appeared to be excellent. The project engineer responsible for the system accompanied the inspectors and was very knowledgeable of the system and its historical performance and problems.

The inspector observed the collection of a waste gas sample from the T 101 waste gas decay tank. The radiation protection technician who collected the sample referenced the procedure frequently during the evolution and used the proper radiation protection controls while handling the sample.

c. Conclusions

The effluent monitors were operational and calibrated in compliance with the ODCM. All effluent monitors but one had setpoints established per the requirements of the ODCM. However, a significant percentage of process monitor calibrations were extended into the grace period, contrary to management expectations. The RETS/REMP Analyst demonstrated good oversight of the radiological effluent monitoring program. The material condition of the gaseous radwaste system was excellent.

## R5 Staff Training and Qualification in Radiation Protection and Chemistry

R5.1 REMP Staff Training and Qualifications (84750)

The inspector reviewed the REMP RP technician task certification matrix and the technicians' three year retraining plan training records. The inspector found that the REMP technicians were properly trained and had sufficient experience to properly execute the program. Comprehensive training and retraining of personnel were provided to the staff, and the course content was kept up-to-date. The training program was adequate to assure compliance with the licensee procedures and regulatory requirements.

## R7 Quality Assurance in Radiation Protection and Chemistry Activities

R7.1 QA Audits and Assessments

a. Inspection Scope (84750)

The inspector reviewed the results of the 1998 and 1999 NPAD audits of the radiological effluent monitoring program and REMP, which assessed implementation of the ODCM, station procedures, and compliance with regulatory requirements. The inspector also reviewed two QA audits of the meteorological monitoring program.

b. Observations and Findings

The 1998 and 1999 NPAD audits of the radiological effluent monitoring program and REMP were broad in scope and comprehensive. The 1999 audit included assistance from an experienced outside auditor, who focused on the licensee's compliance with the administrative requirements of the ODCM. While the audits did not disclose significant problems, numerous examples of inconsistencies between the data reported in the annual reports and the ODCM instructions for reporting the data were identified. For example, the auditor found that while the ODCM specified that specific activity be reported in activity per kilogram, the annual reports reported activity in activity per gram. The inspector discussed these issues with the RETS/REMP Analyst and noted that a CR (CPAL 9901648) had been initiated to address the auditor's findings. Even though numerous minor deficiencies in the implementation of ODCM administrative requirements had been identified, the auditors concluded that the radiological effluent monitoring program and REMP had been effectively implemented. After reviewing the audits and discussing the audit finding with the RETS/REMP Analyst, the inspector concurred with the auditors conclusions.

The 1996 and 1998 NPAD Audits of the meteorological monitoring program were likewise comprehensive. All aspects of the program were examined and corrective actions taken for previous concerns were assessed. No adverse findings were identified.

c. Conclusions

The 1998 and 1999 NPAD audits of the radiological effluent monitoring program and REMP were comprehensive and effective in identifying areas in need of improvement. The 1996 and 1998 NPAD audits of the meteorological monitoring program were also comprehensive. Overall, the audit program was effectively implemented.

R7.2 Condition Report (CR) Corrective Actions and Resolution

a. Inspection Scope (84750)

The inspector reviewed the REMP and effluent monitoring program condition reports initiated during 1999, which addressed deficiencies in the programs.

b. Observations and Findings

With the exception of the condition reports discussed in Sections R 1.1 and R 2.1, the inspector noted no significant adverse trends in the CRs reviewed. Most issues were minor in nature and addressed equipment problems or personnel errors. Corrective actions appeared timely and adequate.

c. Conclusions

Condition reports identified issues related to the REMP and effluent monitoring program that were minor in nature, equipment related or were attributable to personnel error. The corrective actions taken were timely and appropriate.

R7.3 Meteorology Program

a. Inspection Scope (84750)

The inspector reviewed the 1999 Annual Summary for the meteorology monitoring system. The inspector also interviewed the individual responsible for the meteorology monitoring program.

b. Observations and Findings

The inspector noted that all surveillances on the meteorology monitoring system had been performed per procedural requirements. The inspector also noted that meteorology system problems had been addressed in a timely manner. Availability of the meteorology equipment as well as the data collection and transfer capacity of the system was excellent during 1998 and 1999 (greater than 99 percent).

c. Conclusions

Surveillances of the meteorological data collection equipment met the requirements of the ODCM and the Meteorological Monitoring Plan. System availability was excellent.

## V. Management Meetings

### X1 Exit Meeting Summary

The inspector presented the inspection findings to members of licensee management during an exit meeting on February 18, 2000. Plant personnel did not indicate that any materials examined during the inspection should be considered proprietary.

## PARTIAL LIST OF PERSONS CONTACTED

Licensee

E. Bogue, C&RS, Manager
T. Brown, C&RS, Supervisor
D. Burdette, NPAD
D. Cooper, Plant General Manager
S. King, Licensing
R. Margol, Chemistry, Supervisor
G. Szczotka, NPAD, Manager
G. Sturm, ALARA Coordinator
S, Wawro, Maintenance and Planning, Director

NRC

J. Lennartz, Senior Resident Inspector, Palisades

## INSPECTION PROCEDURES USED

IP 84750 "Radioactive Waste Treatment, and Effluent and Environmental Monitoring"

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

## ACRONYMS USED

| | |
|---|---|
| C&RS | Chemical and Radiological Services Department |
| CR | Condition Report |
| NPAD | Nuclear Performance Assessment Department |
| RP | Radiation Protection |
| REMP | Radiological Environmental Monitoring Program |
| RETS | Radiological Effluent Technical Specification |
| TLD | Thermoluminescence Dosimeter |

## PARTIAL LISTING OF DOCUMENTS REVIEWED

### Audits and Assessments

Nuclear Performance Assessment Department (NPAD), Palisades Radiological Effluent Technical Specification (RETS) and Radiological Environmental Monitoring Program (REMP) Audit, PT-98-03, 1998.

Nuclear Performance Assessment Department (NPAD), Palisades Radiological Effluent Technical Specification (RETS) and Radiological Environmental Monitoring Program (REMP) Audit, PT-99-05, 1999.

Nuclear Performance Assessment Department (NPAD), Palisades and Big Rock Point Meteorological Monitoring Project Plan Audit, PT-96-17, 1996.

Nuclear Performance Assessment Department (NPAD), Palisades and Big Rock Point Meteorological Monitoring Project Plan Audit, PT-98-02, 1998.

Assessment Reports 99-06, 99-18, 2000-0011, 2000-19

### Procedures

Procedure No. HP 10.10, "Palisades Radiological and Environmental Program Sample Collection and Shipment"

### Other Documents

Condition Reports: CPAL9901652, 9901648, 9901483, 9801498, 0000338 and 0000275

1998 Annual Rafiological Environmental Operating Report

1998 Annual Radioactive Effluent Release and Waste Disposal Report

Palisades Meteorological Monitoring 1999 Annual Report

Tech Spec Monitor Calibration Intervals (1996 to present)

Palisades Nuclear Plant 10 CFR 50.59 Safety Reviews, ODCM Revisions 8, 9A, 13 and 14

Table, Availability of Process Monitors for 1999

Radiochemistry Cross Checks Results, 1st, 2nd, and 3rd quarters of 1999

REMP/RETS Support Group Training Matrix

Radiological Services Section Radiation Safety Technician 3-Year Retraining Plan Overview and Schedule