

August 30, 2000

Mr. Mark L. Marchi  
Site Vice President  
Kewaunee Plant  
Wisconsin Public Service  
Corporation  
Post Office Box 19002  
Green Bay, WI 54307-9002

SUBJECT: KEWAUNEE - NRC INSPECTION REPORT 50-305/2000016(DRS)

Dear Mr. Marchi:

On August 24, 2000, the NRC completed an inspection at your Kewaunee Nuclear Power Station. The preliminary results were discussed on August 3, 2000, with Mr. Weinbauer and other members of your staff at the conclusion of the onsite inspection. The Kewaunee radiation protection staff provided additional information between August 10 and 24, 2000, which was reviewed in the Region III Office. On August 24, 2000, a telephone conversation was conducted with Mr. Weinbauer and other members of the Kewaunee staff to discuss the results of that review. The enclosed report presents the results of this inspection.

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, facility walkdowns, and interviews with personnel. Specifically, the inspection reviewed aspects of both your occupational and public radiation safety programs, and focused on access controls for radiologically significant areas, the radiological environmental monitoring program, and the controls for the unconditional release of radioactive materials. Additionally, your performance indicator process was reviewed for the occupational radiation safety cornerstone, and indicator data reported for occupational radiation safety, public radiation safety and for the reactor coolant system specific activity component of the mitigating systems cornerstone was verified for accuracy.

Based on the results of this inspection, no findings were identified. However, the onsite inspection disclosed that your staff failed to document, adequately evaluate and address concerns with your environmental air sampling stations in a timely manner, when they were initially identified by the NRC and documented in an inspection report issued in April 2000. Consequently, your staff failed to adequately implement your problem identification and resolution program in this instance. Specifically, we observed that the sampling heads on the environmental air sampling stations were not configured within the sample station enclosures as designed by the manufacturer, and that air sample pump exhaust and a ventilating fan located within at least one of the sample station housings also were not configured in accordance with the manufacturer design.

Subsequent to the onsite inspection, your staff reviewed the sampling configuration at all your environmental air sampling locations, and demonstrated that these stations collected representative samples. Based on the outcome of this review and your plans to address the sampling station configuration problems, we have no further questions related to your environmental air sampling program at this time.

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).

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

Sincerely,

***/RA by James E. Foster Acting For/***

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

Docket No. 50-305  
License No. DPR-43

Enclosure: Inspection Report 50-305/2000016(DRS)

cc w/encl: K. Weinbauer, Manager, Kewaunee Plant  
B. Burks, P.E., Director, Bureau of Field Operations  
Chairman, Wisconsin Public Service Commission  
State Liaison Officer

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cc w/encl: K. Weinhauer, Manager, Kewaunee Plant  
 B. Burks, P.E., Director, Bureau of Field Operations  
 Chairman, Wisconsin Public Service Commission  
 State Liaison Officer

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-305  
License No: DPR-43

Report No: 50-305/2000016(DRS)

Licensee: Wisconsin Public Service Corporation

Facility: Kewaunee Nuclear Power Station

Location: N 490 Highway 42  
Kewaunee, WI 54216

Dates: July 31, 2000 - August 3, 2000, with continued in-office  
review through August 24, 2000

Inspectors: Wayne Slawinski, Senior Radiation Specialist  
Robert Jickling, Emergency Preparedness Analyst

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

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

## Radiation Safety

- Occupational
- Public

## Safeguards

- 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 05000305/2000016(DRS), on 7/31/00 - 8/24/00; Wisconsin Public Service Corporation; Kewaunee Nuclear Power Plant. Regional specialist report.

The inspection was conducted by a regional senior radiation specialist and a regional emergency preparedness analyst. No findings were identified. However, previous NRC identified concerns with the environmental air sampling stations were not documented, adequately evaluated, and resolved within the licensee's problem identification and resolution program.

## Report Details

Summary of Plant Status: The plant operated at over 90% power throughout the four day onsite inspection period.

### **2. RADIATION SAFETY**

Cornerstone: Occupational Radiation Safety

#### 2OS1 Access Controls for Radiologically Significant Areas

##### .1 Plant Walkdowns and Radiological Boundary Verifications

###### a. Inspection Scope

The inspectors performed walkdowns of the radiologically controlled area (RCA) to verify the adequacy of radiological area boundaries and postings. Specifically, the inspectors walked down radiologically significant work area boundaries (high and locked high radiation areas) in the Auxiliary Building and performed confirmatory radiation measurements 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

There were no findings identified.

##### .2 Review of Radiologically Significant Work

###### a. Inspection Scope

The inspectors reviewed the radiation work permit, attended the pre-job briefing, and observed work activities during the clean-out of a radioactive waste sump pit that took place during the inspection. The work was performed within a high radiation area and job coverage was provided by a radiation protection technician. The review was performed to verify the adequacy of surveys, the exchange of radiological information, and the adequacy of radiological controls and worker performance for compliance with the licensee's procedures and good practices.

###### b. Findings

There were no findings identified.

Cornerstone: Public Radiation Safety

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

.1 Review Of Environmental Monitoring Reports and Data

a. Inspection Scope

The inspectors reviewed the 1999 Annual Environmental Monitoring Report, selectively reviewed the environmental monitoring vendor's monthly progress reports for January through May 2000, and reviewed assessment reports for changes to the offsite dose calculation manual (ODCM) related to environmental monitoring, sampling location commitments, monitoring, and measurement frequencies, land use census, interlaboratory comparison program, and data analysis. These reviews were conducted to verify that the radiological environmental monitoring manual (REMM) was implemented as required by Technical Specifications and the ODCM, and that the licensee's assessments ensured that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment. The inspectors also compared the REMM and the most current environmental monitoring information to verify that locations for environmental sampling were consistent.

b. Findings

There were no findings identified.

.2 Walkdowns Of Radiological Environmental Monitoring Stations and Meteorological Tower

a. Inspection Scope

The inspectors conducted a walkdown of four of the six environmental air sampling stations to determine whether they were located as described in the REMM and consistent with NRC guidance, to determine the equipment's configuration and setup relative to collecting representative samples, and to assess material condition. Records were reviewed and instrument readouts were observed to verify that the meteorological instruments and the environmental air sampling equipment were operable, calibrated, and maintained in accordance with regulatory guidance and the licensee's procedures. Meteorological data readouts and recording instruments located at the meteorological tower and as provided by the plant process computer were verified operable and compared to determine if there were any line loss differences.

b. Findings

There were no findings identified. However, the inspectors observed that the particulate and charcoal filter sampling heads on the environmental monitoring equipment were not positioned within the sampling station enclosures as designed by the equipment manufacturer. The inspectors noted that the sampling heads were rotated 180 degrees from that intended by the manufacturer, and that the sample head inlet was at some

stations positioned close against the sample station timer casing which potentially obstructed air flow. The licensee indicated that the sample heads were reconfigured within the enclosures by station maintenance staff in 1995, when quick disconnect fittings were installed on the head couplers. Although an Engineering Support Request for this maintenance activity concluded that changing the charcoal filter and holder would not require revisions to the Updated Safety Analysis Report or Offsite Dose Calculation Manual, the potential impact of the reconfigured equipment on sample collection was not assessed. The inspectors also observed that the exhaust hose for at least one of the sample pumps discharged air near the intake louvers of the sample cabinet that housed the equipment, creating a potential recirculation loop. Additionally, a fan for ventilating a sample cabinet discharged air directly onto one of the sample heads opposite the intended sample air flow direction, instead of creating a suction flow through the cabinet and across the front face of the sample head. The radiation protection staff speculated that the fan may have been mistakenly reinstalled in the reversed flow direction when the cabinets housing the air sample equipment were painted earlier in 2000. Collectively, these equipment configuration problems caused samples to be obtained in a less than optimal orientation, which potentially impacted the representativeness of the samples and consequently the integrity of the data obtained. The same problems identified during this inspection were previously identified by the NRC and documented in Inspection Report No. 50-305/2000005(DRS). Subsequent to the onsite inspection and as described in Section 2PS3.5, the licensee assessed the impact of these equipment configuration issues on the sample data obtained.

### .3 Review Of Radiological Environmental Monitoring Sample Collection and Analysis

#### a. Inspection Scope

The inspectors accompanied a chemistry technician to observe the collection and preparation of particulate and iodine air samples to verify that sampling methodologies were adequate and that the technician's sampling techniques were in accordance with procedures. Air sampler calibration and maintenance records for all six environmental air samplers were also reviewed to verify the equipment was being maintained acceptably and in accordance with procedures. Additionally, the inspectors reviewed the 1999 interlaboratory comparison program results and internal quality control program results for the environmental monitoring vendor, to verify the adequacy of the vendor's analytical capabilities.

#### b. Findings

There were no findings identified.

### .4 Unrestricted Release of Material From the Radiologically Controlled Area

#### a. Inspection Scope

The inspectors evaluated the licensee's controls, procedures and practices for the unrestricted release of material from radiologically controlled areas. Specifically, the inspectors verified that: (1) radiation monitoring instrumentation used to perform surveys for unrestricted release of materials was appropriate; (2) instrument sensitivities

were consistent with NRC guidance contained in Inspection and Enforcement (IE) Circular 81-07 and Health Physics Positions in NUREG/CR-5569 for both surface contaminated and volumetrically contaminated materials; (3) criteria for survey and release conformed to NRC requirements; and (4) radiation protection staff adequately implemented station expectations. In addition, the inspectors verified that the licensee identified its plant radionuclide mix, and monitored the impact that difficult to detect contaminants (such as those that decay by electron capture) could have on its unrestricted release program.

b. Findings

There were no findings identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the results of the licensee's second quarter 1999 audit of the REMM and previous NRC inspection findings, to determine whether identified problems were timely and adequately resolved. Also reviewed were the Quality Program Department's assessments and quality surveillance reports, the Kewaunee Assessment Program (KAP) database, and several individual KAP records related to radiological access controls, radiation exposure, the performance indicator program, and the REMM, generated since January 2000. The inspectors evaluated the effectiveness of the audit/self-assessment process to identify, characterize, and prioritize individual problems and repetitive issues and trends, and to implement timely corrective actions to prevent recurrence.

b. Findings

There were no findings identified. However, concerns previously identified by the NRC with the licensee's environmental air sampling stations were not documented, adequately evaluated, or otherwise addressed within the licensee's problem identification and resolution program.

Inspection Report No. 50-305/2000005(DRS) issued April 10, 2000, documented the same potential problems with the licensee's environmental air sampling stations that were observed during this inspection, as described in Section 2PS3.2. At the time these issues were initially identified by the NRC in March 2000, the radiation protection and chemistry staffs responsible for the environmental air sampling program discussed the air sample equipment configuration problems and agreed upon the desired configuration. However, the potential problems identified by the NRC inspector in March 2000, were not verified by the licensee through direct visual observation due to a misunderstanding between the chemistry and radiation protection groups. The licensee failed to generate a KAP record to document the problems initially identified in March 2000, in its corrective action program. Also, no changes were made to the orientation of the environmental air sampling station equipment even though the sampling heads were not configured as designed by the equipment manufacturer.

Subsequent to the onsite inspection, the licensee reviewed the sampling configuration at all its environmental monitoring stations, compared sampling data obtained at co-located State of Wisconsin air sampling stations and that obtained at an optimally configured station maintained by the Point Beach Plant, and demonstrated that its monitoring stations collected representative samples. The licensee documented the problem in KAP record no. 00-002675, and initiated a work request to rectify the improperly oriented sampling heads and ventilating fan.

#### **4. OTHER ACTIVITIES**

##### **4OA1 Performance Indicator (PI) Verification**

###### **a. Inspection Scope**

The inspectors reviewed the licensee's PI related data generated during the four quarters preceding the inspection for the occupational radiation safety and public radiation safety cornerstones, and for the reactor coolant system specific activity component of the mitigating systems cornerstone. The accuracy and completeness of the data was assessed against the criteria specified in Nuclear Energy Institute (NEI) 99-02, Revision 0, "Regulatory Assessment Performance Indicator Guideline." Specifically, the inspectors reviewed KAP records that dealt with work activities in radiologically significant areas, involved unplanned exposures or effluent control problems, and reviewed the licensee's data collection, analysis, and computation methods for the indicators evaluated.

The inspectors observed a chemistry technician collect and analyze primary system samples to ensure procedures were followed, and to verify that the methodology for coolant activity determination was adequate. The inspectors also independently accessed radiological area access controls and postings during plant walkdowns. In addition, the inspectors reviewed the licensee's assessment and corrective action program documents to determine if problems with the collection or review of performance indicator data occurred, and interviewed members of the licensee's staff responsible for data acquisition and PI verification and reporting.

###### **b. Findings**

There were no findings identified.

##### **4OA5 Temporary Instruction 2515/144 - PI Data Collecting and Reporting Process Review**

###### **a. Inspection Scope**

The inspectors reviewed the licensee's PI data collecting, data analysis and reporting process for the occupational radiation safety cornerstone, to determine whether the licensee was appropriately implementing NRC and industry guidance contained in NEI 99-02, Revision 0. The inspectors verified that procedures for this aspect of the licensee's performance indicator program were adequately developed and implemented, that data collection and analysis methods were appropriate, that indicator definitions and

reporting elements were consistent with industry guidance, and that licensee staff responsible for data acquisition and analysis understood and properly implemented industry guidance.

b. Findings

There were no findings identified.

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. Weinhauer and other members of licensee management and staff at the conclusion of the onsite inspection on August 3, 2000. On August 24, 2000, a telephone conversation was conducted with Mr. Weinhauer and others, to discuss the results of NRC's review of additional information provided by the licensee's staff between August 10 and 24, 2000. The inspectors informed licensee management during the August 24, 2000 telecon that the concerns associated with the environmental air sampling stations were adequately evaluated, documented and addressed by the radiation protection staff after the onsite inspection and that the matter was closed. However, problems with the initial identification and resolution of the air sampling station issues may be evaluated further as part of the NRC's annual focused problem identification and resolution inspection. The licensee acknowledged the findings presented. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

- R. Bower, Senior Quality Assurance Auditor
- W. Flint, Superintendent, Chemistry
- B. Gauger, Health Physicist
- K. Hoops, Plant Manager
- C. Long, Radiation Protection Supervisor
- D. Morgan, Radiation Protection Crew Leader
- M. Reinhart, Superintendent, Radiation Protection
- D. Shields, Analytical Chemist
- E. Swanson, Lead Radiation Technologist
- T. Webb, Director, Nuclear Licensing
- K. Weinbauer, General Manager

NRC

- J. Lara, Senior Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF BASELINE INSPECTION PROCEDURES PERFORMED

The following inspectable-area procedures were used to perform this inspection. Documented findings are contained in the body of the report.

	<u>Inspection Procedure</u>	<u>Report Section</u>
No. 71121.01	Access Control to Radiologically Significant Areas	2OS1
No. 71122.03	Radiological Environmental Monitoring Program and Radioactive Material Control Program	2PS3
No. 71151	Performance Indicator Verification	4OA1
No. 2515/144	Performance Indicator Data Collecting and Reporting Process	4OA5

## PARTIAL LIST OF DOCUMENTS REVIEWED

The following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings.

### Procedures and Guidelines

HP-5.02, Revision B, Equipment Tagging, Labeling and Marking  
HP-5.001, Revision E, Survey and Sampling Techniques  
HP-1.004, Revision H, RCA Entry and Exit  
RC-C-85, Revision F, Primary System Sampling  
NAD-3.18, Revision A, NRC Performance Indicator  
Guideline For Data Collection and Reporting NRC Performance Indicators,  
Revised June 22, 2000  
SP-63-164, Revision U, Environmental Sample Collection  
SP-63-276, Revision E, Environmental Monitoring Program Monthly Reviews  
TIML-SP-01, Revision 1, Sampling Procedures Manual, Sections B and G  
HP-01.017, Revision A, Self-Assessment of the Radiation Protection Program  
HP-1.14, Revision B, Land Use Census Program

### Investigation Reports, KAP Forms and Related

KAP WR# 00-001824, WO# 00-001710-000, Document the loss of three milk sample locations and the acceptability of their replacements until the REMM can be formally revised  
Dosimetry Problem Reports, TLD Nos. 146, 269, 426, 9, 329, and 522, dated July 25, June 22, June 20, June 8, June 1, and May 26, 2000  
KAP Database (related to radiation protection issues) for 1999–July 2000, and selected KAP Records

### Audits, Assessments, and Related

Quality Assurance Special Audit, January 2000, Revised Regulatory Oversight Process  
Performance Indicators  
Quality Program's Quality Surveillance Report Database for 1999-July 2000 and Selected  
Quality Surveillance Reports  
Kewaunee Nuclear Power Plant First Quarter 2000 Audit Report, Section 7  
Audit 00-002, Audit Summary - Support Services Second Quarter 2000, Draft  
Audit 99-002, Environmental Radiological Monitoring Program Second Quarter 1999

### Other Documents

Listing of Technical Specification High Radiation Areas, High Radiation Areas, and Associated Posting Information  
Reactor Coolant System Dose Equivalent Iodine Concentration (ChemTrend) Data, Fourth Quarter 1999- August 1, 2000  
Radiological Environmental Monitoring Manual, Revision 5  
Offsite Dose Calculation Manual, Revision 8  
Kewaunee Nuclear Power Plant Annual Environmental Monitoring Report January–December 1999, dated April 5, 2000  
HP-1.14, Attachment A, Land Use Census Worksheet, June 30, 1999  
SP-63-048, Revision D, Meteorological System Checklists from January 6–July 19, 2000  
SP-63-019, Revision C, Meteorological System Processor Data Sheets from January 19–June 22, 2000  
SP-80-061, Revision O, RADIAC Calibration Worksheets, dated March 28, 2000