

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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Report No: 50-266/97014(DRS); 50-301/97014(DRS)

Licensee: Wisconsin Electric Power company

Facility: Point Beach Nuclear Plant, Units 1 and 2

Location: 6610 Nuclear Road
Two Rivers, WI 54241

Dates: July 7-11, 1997

Inspectors: R. Paul, Senior Radiation Specialist
K. Lambert, Radiation Specialist

Approved by: Gary L. Shear, Chief, Plant Support Branch 2
Division of Reactor Safety

EXECUTIVE SUMMARY

Point Beach Nuclear Plant, Units 1 & 2
NRC Inspection Report 50-266/97014(DRS); 50-301/97014(DRS)

This routine inspection included a review of the Radiological Environmental Monitoring Program, the water chemistry control program, and the liquid and gaseous effluent monitoring program. The following specific observations were made:

- One violation was identified for failure to follow procedures involved with the maintenance of environmental air samplers. The apparent cause is the lack of a system to notify health physics staff when a procedure is revised (Section R1.1).
- The Radiological Environmental Monitoring Program was effectively implemented (Section R1.1).
- Plant water chemistry continued to be very good. A weakness was identified regarding the lack of documenting actions taken when chemistry parameters fall outside their control limits (Section R1.2).
- Overall, area radiation monitors, and liquid and gaseous monitoring programs were effective. Radioactive releases and dose to the public from the releases were well below the regulatory permissible limits (Section R1.3).
- Required surveillance and tests on non-Technical Specification engineered-safety-featured air filtration equipment were performed appropriately with the test results indicating that acceptance criteria were met (Section R1.4).
- The calibration and maintenance program for the alpha radiation monitors was well implemented, and the monitors had a good operability history (Section R2.1).
- The material condition of the post-accident sampling system was good and effective modifications were made to ensure the capability of containment air sampling during accident conditions (Section R2.2).
- Overall, the chemistry quality assurance program was effectively implemented. A weakness was identified in that instrumentation daily performance control charts were not evaluated for trends or biases, which could provide early indication of instrumentation degradation (Section R7.1).
- A licensee audit of the primary water chemistry program identified several areas with minor deficiencies and corrective actions were being implemented (Section 7.2).
- A heat stress program is being developed in response to a heat stress incident involving a worker in the lower cavity of containment (Section R8.1).

Report Details

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope (84750)

The inspectors reviewed selected areas of the licensee's radiological environmental monitoring program (REMP) including the 1996 Annual Monitoring Report. The inspectors also reviewed the program requirements described in the Off-site Dose Calculation Manual (ODCM), Updated Final Safety Analysis Report (UFSAR), and Technical Specifications (TSs). In addition, the inspectors observed the collection of environmental air samples.

b. Observations and Findings

The 1996 Annual Monitoring Report appeared to comply with REMP requirements. Environmental samples had been collected and analyzed; missing samples were documented; and the annual land use census had been conducted as required. The environmental sample data indicated that there had been no discernable radiological impact on the environment from the operation of the facility. Observed air sampling equipment was within calibration and in good working order. Sampling locations were in agreement with the procedures and the dose calculation manual.

The inspectors accompanied a health physics technician during weekly rounds to change air particulate filters and iodine cartridges. The technician was knowledgeable in the procedures and process to change the filters and cartridges. During the rounds, the technician also performed monthly maintenance and quarterly leak testing. The inspector observed that the technician was not performing the monthly maintenance in accordance with the Maintenance and Calibration of Low Volume Air Samplers procedure. A temporary change to the procedure was issued on June 3, 1997, which, in part, changed steps 9.2.1(a) and 9.2.1(d) of the procedure from removing and reusing the bypass filter to removing and discarding all filters. The technician was observed removing the felt bypass filters and reusing them on the pump exhaust, which was the process prior to the temporary change. The failure to follow the procedure is a violation of Technical Specification 15.7.8.3, which required the ODCM to be established and maintained in accordance with TS 15.6.8. TS 15.6.8, required, in part, that the plant be operated in accordance with major procedures, supported by minor procedures (VIO 50-266/97014-01(DRS); 50-301/97014-01(DRS)).

Discussions with the technician indicated that he had not reviewed the Maintenance and Calibration of Low Volume Air Samplers procedure prior to performing the maintenance. The technician indicated that he had reviewed the procedures involving the collection of particulate filters and iodine cartridges along with other environmental collection procedures. The technician also indicated that he was not informed of changes to the maintenance and calibration procedure. Further discussions with a health physics supervisor and a health physics specialist revealed that an E-mail message was sent out when procedures were being revised,

but a message communicating that a procedure revision had been implemented is not sent. The specialist indicated that several weeks to several months may pass between the procedural revision notice and the revised procedures implementation. The specialist also indicated that when a temporary change is made a notice is not generally sent to the technicians communicating the change. The licensee indicated that there is not a process in place to notify health physics staff when procedures are revised. However, Condition Report 97-1444 was initiated to address this issue. Corrective actions for this condition report were being evaluated by the health physics staff at the conclusion of this inspection.

c. Conclusions

Overall, the REMP program was effectively implemented. One violation was identified for failure to follow procedures, with the apparent cause being the lack of a system for notifying health physics staff when a procedure revision has been implemented.

R1.2 Water Chemistry Control Program

a. Inspection Scope (84750)

The inspectors reviewed the licensee's water chemistry control program. This included discussions with cognizant individuals regarding chemical additions for corrosion control. The inspectors also reviewed trend charts of numerous chemistry parameters from January 1996 through March 1997.

b. Observations and Findings

The water chemistry program was consistent with the Electric Power Research Institute (EPRI) pressurized water reactor guidelines. A review of selected trend records indicated that plant water quality was very good, and no significant problems were observed. The secondary water chemistry parameters for sodium, sulfate and chloride were maintained at less than ten percent of the EPRI guidelines. The inspectors noted that when chemistry data parameters were outside the control limit, timely action was taken to bring the parameter within limits. However, the inspectors noted a weakness in that the corrective actions taken were not generally documented. When questioned, staff could not always recall the problems encountered and corrective actions taken. The lack of documentation could prohibit the staff from identifying recurrent water chemistry problems and appropriate corrective actions.

Radiochemistry trend charts for reactor coolant isotopic analysis indicated that there were no problems with fuel integrity. A review of selected reactor coolant chemistry parameter trend charts indicated that coolant quality was very good. Parameters were maintained below 10 percent of the EPRI guidelines.

The recently replaced steam generators were in wet layup, with hydrazine added to scavenge oxygen to reduce corrosion. The chemistry department was making boric acid treatment preparations for passivating the steam generators during startup in accordance with the manufacturer's recommendations. No problems were noted.

c. Conclusions

Plant water chemistry continued to be very good. A weakness was noted regarding documenting actions taken when chemistry parameters fall outside their control limits.

R1.3 Liquid and Gaseous Radwaste

a. Inspection Scope (84750)

The inspectors reviewed selected portions of the licensee's liquid and gaseous radwaste program. This review included observations of the operational condition of the monitors and effluent control instruments, reviews of monitor availability and calibration records, radwaste discharge permit records and procedures, and effluent results. Dose quantification methodology and technical documents to determine compliance with effluent requirements were reviewed. The inspectors also reviewed area radiation monitors (ARM), including the control room habitability ARM, calibration procedures and results, and monitor alarm set points.

b. Observations and Findings

To date there were no significant changes in the licensee's liquid and gaseous effluent systems as described in the ODCM and the UFSAR. Quantification of gaseous and liquid discharges were completed in accordance with the appropriate procedures, and the inspectors established that offsite doses and effluent release monitor set points were calculated using ODCM methodology.

Calibration of the TS effluent monitors was accomplished in 1992 using National Bureau of Standards primary (gas and liquid) sources to establish efficiencies and demonstrate linearity; subsequent calibrations used secondary sources. The review of the functional test and calibration data for the systems indicated they were performed in accordance with approved procedures and were technically sound. However, a problem involving the liquid discharge monitor set points was identified when, after several occasions, liquid discharges were secured after receiving an alert alarm while the discharge was in progress. The securing of the discharges was caused because the operating procedure did not allow calculation and adjustment of the alert alarm set point until after the alert alarm was received, even though it was reasonable to expect the alarm. This matter was discussed with the licensee who indicated that the procedure would be modified to allow adjustment of the alert alarm set point prior to commencement of the discharge. Operability problems have only prevented meeting the licensee's goal of 95 percent alarm availability on two occasions this year.

During plant walkdowns, the inspectors observed that the material condition of the monitors and associated read out systems was good with few work request tags observed on the systems. The effluent monitor system radiation protection engineer was knowledgeable of the system and its operating parameters.

The licensee maintained a fixed network of ARMs to monitor plant radiological levels and provide early notification of possible adverse events. The ARMs

constitute a fixed, in-place network with each specific monitor location and expected background radiation levels described in the UFSAR. Oversight and calibration of the ARMs (including the control room habitability monitor) was maintained by the health physics staff with the instrument maintenance group performing routine maintenance. During plant walkdowns, the inspectors observed ARMs in good operating condition and evidence of routine surveillance activities by plant personnel. The inspectors reviewed selected calibration and maintenance records for the ARMs; no problems were identified.

c. Conclusions

Overall, the liquid, gaseous, and ARM monitoring program was effectively implemented. Radioactive releases and dose to the public from the releases were well below the regulatory permissible limits.

R1.4 Engineered-Safety-Feature Filtration Systems

a. Inspection Scope (84750)

The inspectors reviewed the latest test results of the Technical Specification required engineered-safety-feature atmosphere cleanup filtration and absorption units.

b. Observations and Findings

The inspectors reviewed the licensee's results for the most recently performed containment purge and cleanup, drumming station, and control room emergency ventilation systems tests. These tests included in-place charcoal adsorber leak tests, charcoal canister iodine adsorption tests, and in-place high efficiency particulate air filter tests. The test results were within the Technical Specification limits and were performed using proper industry standards. During plant walkdowns, the inspectors noted that the above systems were maintained in good material condition. The isokinetic and main vent pathway exhaust systems flows were periodically measured and compared, with no significant problems identified.

c. Conclusions

Required surveillance and tests were performed on engineered-safety-feature filtration systems and the results of the tests indicated that Technical Specification acceptance criteria were met.

R1.5 Radioactive Effluents (84750)

The inspectors reviewed the licensee's semiannual radioactive effluent reports from January 1995 through December 1996, and some monthly effluent data from January 1997. The inspectors noted that the personnel responsible for generating the effluent reports were knowledgeable of the process and were effectively tracking effluent activity released. The total activity released in 1996 remained low and was well below applicable regulatory requirements.

R2 Status of RP&C Facilities and Equipment

R2.1 Facilities and Equipment

The inspectors reviewed the operation and calibration methodology for the portable alpha counting detectors. The inspection included observation of radioactive source condition, and review of procedures, detector operability history, and calibration and test results.

Calibrations and instrument tests were performed as required. The inspectors noted that a plutonium-239 alpha standard was the primary source used for calibration and detector efficiency was about 28 percent on all alpha monitoring equipment. The source did not appear degraded and its observed output was as expected.

The overall calibration and maintenance program for the alpha monitors was well implemented, and the monitors were noted to have good operability history.

R2.2 Post-Accident Sampling System (84750)

The inspectors reviewed the licensee's post-accident sampling system (PASS) capabilities. This included an inspection of the sampling stations, and discussions with cognizant system engineering and chemistry personnel.

The inspectors noted that chemistry and system engineering had a thorough understanding of the PASS system including the process with which a sample is obtained, system connections, and the maintenance history. The containment air sampling portion of PASS had been recently modified, due to the licensee determining that the air sampling pumps were not capable of providing a representative air sample at the calculated post-accident containment pressures. This modification had been installed on both containment sampling systems. Chemistry technicians have been provided training, and the functional test was scheduled for the near future. The inspectors determined that the material condition of the PASS stations was good and that the licensee was capable of obtaining required samples.

The inspectors noted that the licensee had effectively maintained the material condition of the PASS system and made modifications to ensure the capability of containment air sampling during accident conditions.

R4 Staff Knowledge and Performance in RP&C

R4.1 Staff Performance During Sample Acquisition (84750)

The inspectors observed chemistry technicians during the routine sample acquisitions of primary samples from the residual heat removal system and the mixed bed demineralizer inlet. In addition, a technician was observed collecting a sample from a boric acid tank. The chemistry technicians appropriately contacted the control room prior to obtaining each sample and at the end of each evolution. The technicians used good sampling techniques including rinsing the bottles prior to

obtaining each sample. The primary side sample procedure required continuous use, therefore one technician was reading the steps and the second technician was manipulating the valves and collecting the sample. The technician collecting the primary side samples used good contamination control. The technician collecting a boric acid tank sample reviewed the appropriate procedures prior to sample collection and was very familiar with sampling requirements and sample locations.

R7 Quality Assurance in R/P&C Activities

R7.1 Laboratory and Instrument Control Program

a. Inspection Scope (84750)

The inspectors reviewed the laboratory quality assurance program, including the laboratory comparison program for radioanalytical instrumentation and quality control of instrumentation.

b. Observations and Findings

The inspectors reviewed the results from the interlaboratory radiological cross check program and noted generally good agreement. If agreement fell outside plus or minus ten percent, corrective actions were taken and documented. Control charts were used to monitor the performance of counting equipment. A review of selected control charts indicated that corrective action was taken and documented when instrument response falls outside the control limits. However, a weakness was identified in that the quality control program did not include evaluations for trends or changes in pattern on the control charts. Evaluating trends or pattern changes can provide early warning of instrumentation degradation and provide time to correct a potential problem before instrument response falls outside the control limits.

Chemistry personnel indicated that a purchase order had been issued for procuring a new laboratory program for data storage. This program will also include trend charts for instrumentation response and have trending and bias identification features built into the program. The chemistry manager indicated this should correct the trending weakness. The manager also indicated that the program should be received later this year, and the expectation is to have the program running by the end of 1997.

c. Conclusions

Overall, the quality assurance program was effectively implemented. A weakness was identified in that instrument trends or biases were not evaluated, which could provide early indication of degraded instrumentation.

R7.2 Chemistry Department Audit (84750)

The inspectors reviewed the results of a quality assurance audit of primary water chemistry, and hazardous and special material control. This was a two week audit and included station personnel and an individual from another nuclear power plant.

The audit indicated that while the monitoring and control of primary chemistry is effective, there were a number of areas in the program where improvements could be made. The chemistry manager indicated that condition reports had been initiated for the areas needing improvement. The inspectors reviewed several condition reports, checked on their status and determined that progress was being made. The inspectors noted that the audit appeared comprehensive and that corrective actions in response to the condition reports were being implemented and should strengthen the chemistry program.

R8 Miscellaneous RP&C Issues

R8.1 Heat Stress Incident (83750)

The inspectors reviewed a condition report and circumstances surrounding a heat stress incident involving an individual in the lower cavity of containment. During the recent outage a worker had to leave the lower cavity because of heat stress; the worker was not injured. The licensee's review of this event indicated that although there was some discussion of the hot humid conditions in the lower cavity of containment during the pre-job briefing, no specific cautions were discussed. There was not a formal heat stress program at the station prior to the incident, to inform workers of potential heat stress areas or cautions to be implemented during work in areas of elevated temperature and humidity. The inspectors noted that as a result of the condition report and review, an industrial hygiene contractor was retained to develop a formal heat stress program.

R8.2 (Closed) VIO 50-266/97008-02(DRS); 50-301/97008-02(DRS): Failure to provide hazardous material worker training to contract health physics technicians working in radwaste once every three years. The health physics staff implemented the following corrective actions to the violation: suspended activities performed by contract workers unless under the direct supervision of properly trained individuals, provided the required training to the workers, and incorporated the contract workers into the staff health physics continuing training program. The inspectors reviewed the corrective actions and concluded that the actions were appropriate.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on July 11, 1997. The licensee acknowledged the findings presented.

The licensee did not identify any information discussed as being proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Rick Arnold, Chemistry Supervisor
Fred Cayia, Plant Manager
Elaine Epstein, Health Physics Specialist
Dave Gehrke, Chemistry Specialist
Dan Gesch, Chemistry Supervisor
Beth Hellman, Chemical Engineer
Kjell Johansen, Senior Nuclear Engineer
Ed Lange, Health Physics Supervisor
Rick LaRhette, Chemistry Manager
Don LeClair, Health Physics Specialist
Tim Smith, Health Physics Supervisor
Paul Tindall, Health Physics Manager
Clarice Zellmer, Chemical Engineer

INSPECTION PROCEDURES USED

IP 83750: Occupational Radiation Exposure
IP 84750: Radioactive Waste Treatment, and Effluent and Environmental Monitoring

LIST OF ITEMS OPENED AND CLOSED

Opened

50-266(301)/97014-01 VIO failure to follow a health physics procedure during the maintenance of environmental air samplers

Closed

50-266(301)/97008-02 VIO failure to provide hazardous worker training to contract health physics technicians worker in radwaste

LIST OF ACRONYMS USED

ARM	Area Radiation Monitors
DRS	Division of Radiation Safety
EPRI	Electric Power Research Institute
ODCM	Off-site Dose Calculation Manual
NRC	Nuclear Regulatory Commission
PASS	Post-Accident Sampling System
PDR	Public Document Room
PBNP	Point Beach Nuclear Plant
REMP	Radiological Environmental Monitoring Program
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
VIO	Violation

LIST OF DOCUMENTS REVIEWED

Chemistry Analytical Methods and Procedures, CAMP 106, Rev 5, 6/4/93, "Interlaboratory Radiological Cross Check Procedure"

Chemistry Analytical Methods and Procedures, CAMP 600, Rev 24, Temp Change 10/29/96, "Primary Side Sampling Procedures: Primary Sample Panel Operations"

Chemistry Parameter Control Charts, January to July 1997

Condition Report, dated 6/25/97, not numbered, no heat stress program in place at PBNP

Emergency Plan Implementing Procedures, EPIP 8.4.1, "Post-Accident Sampling, analysis of Potentially High Activity Reactor Coolant"

Emergency Plan Implementing Procedures, EPIP 8.4.2, "Post-Accident Sampling of Containment Atmosphere"

Environmental Manual, Rev 11, 6/21/95

Health Physics Calibration Procedure, HPCAL 1.33, Rev 4, Temp Change 6/3/97, "Maintenance and Calibration of Low Volume Air Samplers"

Instrumentation Control Charts, November 1996 to July 1997

Interlaboratory Radiological Cross Check Data Sheets, February 1995 to June 1997

Procedures Manual, NP 3.2.2, "Primary Water Chemistry Monitoring Program"

Procedures Manual, NP 3.2.3, Rev 4, Temp Change 6/3/97, "Secondary Water Chemistry Monitoring Program"

Quality Assurance Audit Report, A-P-97-10, "Primary Water Chemistry, Hazardous and Special Material Control"