

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-266/91027(DRSS); 50-301/91027(DRSS)

Docket Nos. 50-266; 50-301

License Nos. DPR-24; DPR-27

Licensee: Wisconsin Electric Power Company
231 West Michigan
Milwaukee, WI 53201

Facility Name: Point Beach Nuclear Power Plant, Units 1 and 2

Inspection At: Two Creeks Wisconsin

Inspection Conducted: November 18-22, 1991 (On-site)

Inspector: *J. E. House*
J. E. House

12-12-91
Date

Approved By: *M. C. Schumacher*
M. C. Schumacher, Chief
Radiological Controls and
Chemistry Section

12-12-91
Date

Inspection Summary

Inspection on November 18-22, 1991 (Report Nos. 50-266/91027(DRSS);
50-301/91027(DRSS))

Area Inspected: Routine announced inspection of: (1) the chemistry program, including procedures, organization, and training; (2) primary and secondary systems water quality control programs; (3) quality assurance/quality control program in the laboratory; (4) nonradiological chemistry comparisons; (5) the radiological environmental monitoring program (REMP) and (6) review of open items (IP 84750).

Results: The licensee's water quality control program conforms to the EPRI Steam Generator Owners Group guidelines and overall water quality was good. The licensee's performance in the chemistry comparison program was very good. Laboratory QA/QC Programs continue to improve and the REMP was operating satisfactorily. No violations or deviations were identified.

DETAILS

1. Persons Contacted

- R. Arnold, Chemistry Technician
- ¹J. Crowley, Quality Specialist, Regulatory Services
- L. Epstein, Senior Training Specialist
- D. Florence, Environmental Technician
- ¹T. Fredrichs, Manager, Chemistry
- ¹D. Gehrke, Chemistry Supervisor
- D. Gesch, Nuclear Specialist
- E. Hinshaw, Nuclear Specialist
- ¹R. Parlato, Chemistry Supervisor
- ¹D. Peterson, Quality Specialist, Regulatory Services
- K. Rathgaber, Nuclear Specialist
- T. Slack, Nuclear Specialist

The inspector also interviewed other licensee personnel in the course of the inspection.

¹Denotes those present at the plant exit interview on November 22, 1991.

2. Licensee Action on Previous Inspection Findings (IP 84750)

(Closed) Open Item Nos. (50-266/90002-01; 50-301/90002-01): Licensee to implement independent controls, develop written procedure for control charts and plot values of independent controls on these charts. The licensee has a written control chart procedure and plots independent control values on control charts.

3. Management Controls, Organization and Training (IP 84750)

The organizational structure of the chemistry laboratory has changed since the last inspection. The Chemistry Manager reports to the Manager, Operations and Technical Support, who reports to the Plant Manager. Two Chemistry Supervisors and four Nuclear Specialists report to the Chemistry Manager. One supervisor is responsible for daily laboratory operations and the other position is responsible for lab QA and nonroutine functions. These supervisors switch positions every three weeks. Eleven Chemistry Technicians report to the Chemistry Supervisors. The Nuclear Specialists are responsible for monitoring plant systems including primary and secondary chemistry, make-up water, effluent release calculations, NPDES permit releases, in-line ion chromatographs, fuel integrity, computer systems and the sewage treatment plant.

No violations or deviations were identified

4. Water Chemistry Control Program (IP 84750)

The inspector reviewed selected records from the licensee's computer based system for trending primary and secondary water chemistry parameters. Selected records from the past year indicated that water

quality is very good and chemistry parameters for both primary and secondary systems were well within the Owners Group Guidelines.

Primary system fluoride and chloride, sulfate and dissolved oxygen levels averaged less than 5 ppb compared with industry guidelines of 150, 150, 100 and 10 ppb respectively. Hydrogen levels were within the expected value range.

Steam generator (S/G) blowdown levels of chloride, sulfate, sodium and silica averaged less than 5, 7, 2 and 30 ppb compared with limiting values of 20, 20, 20 and 300 ppb respectively. Cation conductivity was at or above the guideline of 0.8 microSiemen/cm, however, licensee representatives stated that this was the result of morpholine addition which is used for pH control. Feedwater iron and dissolved oxygen respectively averaged less than 10 and 5 ppb compared with guideline values of 20 and 5 ppb. In-line Dionex Ion Chromatographs for monitoring anions (formate, acetate, chloride, fluoride and sulfate) and cations (sodium, ammonia and morpholine) in secondary systems had been installed since the previous inspection.

Chemistry parameters are flagged by the laboratory computer if grab samples are outside of the guidelines. Data is first reviewed by technicians and supervisors while long term trending is performed by nuclear specialists. A report of chemistry parameters is circulated to plant management weekly. Abnormal trends or parameters that are out of specification are immediately reported to plant managers. The licensee's water quality program appeared to be very good.

No violations or deviations were identified.

5. Nonradiological Confirmatory Measurements (IP 84750)

The inspector submitted chemistry standards to the licensee for analysis as part of a program to evaluate the laboratory's capabilities to monitor nonradiological chemistry parameters in various plant systems with respect to regulatory and administrative requirements. These samples had been prepared and standardized for the NRC by the Radiological Sciences Division of Brookhaven National Laboratory (BNL). The samples were analyzed by the licensee using routine methods and equipment.

A single dilution was made for each sample by licensee personnel as necessary to bring the concentrations within the ranges normally analyzed by the laboratory, and run in a manner similar to that of routine samples. The results are presented in Table 1 which also contains the criteria for agreement. These criteria are based on BNL analyses of the standards and on the relative standard deviations (RSD) derived from the results of the plants participating in the 1986 interlaboratory comparisons (Table 2.1. NUREG/CR-5422). The acceptance criteria were that the licensee's value should be within 2 Standard Deviations of the BNL value for agreement and between 2 and 3 SD for qualified agreement. A qualified agreement may indicate a bias in the assay.

The licensee analyzed multiple concentrations of eleven analytes (Table 1). Of the 31 analyses, 25 were agreements, 5 were qualified agreements and one was a disagreement. The disagreement was the middle fluoride concentration which had a positive bias of 23%. The three fluoride concentrations exhibited positive biases of 15-23% with the low and high levels being qualified agreements. Fluoride is measured by ion chromatography (IC) with gradient elution. The licensee reanalyzed the fluoride unknowns using a different IC system (gradient) which had an initial eluant concentration lower than that of the first instrument. Whereas the initial fluoride analysis indicated a single peak, the second set of analyses resolved this peak into two peaks which the licensee identified as acetate and fluoride. The second set of results were agreements. Coelution of acetate with fluoride in the initial analysis appeared to be the cause of the disagreement and the positive biases.

The middle ammonia concentration (qualified agreement) had a negative bias of 11%. Reanalysis of this sample following recalibration resulted in an agreement with a relatively small bias (5%). The two sodium concentrations were initially analyzed by flame Atomic Absorption Spectrophotometry (AAS) and were disagreements with large positive biases (not shown in Table 1). These samples also contain lithium (agreements) which appeared to interfere with sodium when analyzed by flame AAS. Analysis of sodium by IC produced agreements. The licensee performed very well in the chemistry comparisons and in resolving the fluoride disagreement.

No violations or deviations were identified.

6. Implementation of the Chemistry QA/QC Program (IP 84750)

The inspector reviewed and discussed the chemistry QA/QC program with licensee representatives. Control charts, independent controls and multiple point calibration curves (for some assays) are in use. Independent controls are analyzed monthly and the results are plotted on control charts. Some instruments, the ion chromatograph and the new ultraviolet-visible (uv-vis) spectrophotometer, employ a single point (and zero) calibration curve. A midrange check standard which is prepared from calibrator solutions is run for all assays. For control charts the difference between the measured value of the check standard and its prepared value is plotted. This is a weakness because the midrange control is not truly independent of the calibrator solution. An independent control is run only monthly. Improvements to the QA program discussed with licensee representatives included replacing the midrange check standard with the independent control.

The licensee has a single vendor supplied interlaboratory and intralaboratory comparison program. Technicians are tested twice per year and results must be within an acceptance band. A review of selected data from 1991 indicated that the required testing is being performed and that the laboratory's performance is adequate. This program appeared to be well managed.

The inspector reviewed the results of samples taken from the Post Accident Sampling System (PASS) during required training. Occasionally,

some results including boron, hydrogen, chloride, radioactive iodines and xenons failed to meet the licensee established acceptance criteria, which is based on a percent or fixed deviation from the most recent routine grab samples. Causes of the discrepancies discussed with licensee representatives were inadequate line purge and differences in time of collection between the PASS and the grab samples. Licensee representatives stated they would investigate the matter and respond by letter with their findings by June 15, 1992.

No violations or deviations were identified.

7. Analyses Required by Technical Specification (IP 84750)

The inspector reviewed trends of boron analyses required by Technical Specifications. These included Refueling Water Storage Tank (weekly, 2000 ppm minimum boron concentration), Boric Acid Storage Tank (twice weekly, 11.5% minimum boron concentration), Accumulator (monthly, 2000 ppm minimum boron concentration) and the spent fuel pit (monthly, 1800 ppm minimum boron concentration). Selected data from the past year indicated that all required analyses were performed and boron concentrations met T/S requirements.

No violations or deviations were identified.

8. Audits and Appraisals (IP 84750)

The inspector reviewed chemistry department condition reports from quality assurance audit A-P-91-08 conducted during 1991. The auditors appeared to address the chemistry QA/QC program in adequate detail and findings were addressed in a timely manner.

No violations or deviations were identified.

9. Radiological Environmental Monitoring Program (REMP)(IP 84750)

The inspector reviewed the REMP, including the 1990 Annual Environmental Report, and toured selected air sampling stations. The Annual Environmental Report appeared to comply with the REMP requirements. All of the required samples were collected and analyzed, except as noted in the report. The results do not indicate a significant contribution to the environment due to plant operation.

The inspector toured five air sampling stations around the plant and discussed the weekly filter changeout program with the responsible environmental technician who was very knowledgeable of the REMP. None of the samplers tested had any air in-leakage and all had current calibration stickers and appeared to be operating satisfactorily, both with respect to vacuum and flow. The REMP appeared to be well managed.

No violations or deviations were identified.

10. Open Items

Open Items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee, or both. An open item disclosed during the inspection is discussed in Section 6.

11. Exit Interview

The scope and findings of the inspection were reviewed with licensee representatives (Section 1) at the conclusion of the inspection on November 22, 1991. The inspector discussed Open Items (sections 2 and 6), results of the nonradiological chemistry comparisons, observations on the quality assurance program, water quality trend data and the REMP.

During the exit interview, the inspector discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. Licensee representatives did not identify any such documents or processes as proprietary.

Attachment: Table 1, Nonradiological Confirmatory
Measurements Results, November 18-22, 1991

TABLE 1
 Nonradiological Interlaboratory Test Results
 Joint Beach Nuclear Plant
 November 18-22, 1991

Analyte	Method ¹		Concn ²	Ratio ³	Acceptance Ranges ⁴		Result ⁵
					+ 2sd	+ 3sd	
<u>ppb</u>							
Chloride	A	IC	10	1.056	0.933-1.067	0.900-1.100	A
	B		12	1.038	0.919-1.081	0.887-1.113	A
	C		20	0.986	0.926-1.074	0.895-1.105	A
Fluoride	A	IC	10	1.153	0.875-1.125	0.813-1.187	A+
	B		10	1.236	0.875-1.125	0.813-1.187	D
	C		15	1.153	0.875-1.125	0.813-1.187	A+
Rerun	A	IC	10	1.042	0.875-1.125	0.813-1.187	A
	B		10	1.031	0.875-1.125	0.813-1.187	A
	C		15	0.885	0.875-1.125	0.813-1.187	A
Sulfate	A	IC	7	1.035	0.895-1.105	0.842-1.158	A
	B		8	1.035	0.895-1.105	0.868-1.132	A
	C		10	0.989	0.900-1.100	0.867-1.133	A
Iron	G	AA/FU	15	1.061	0.904-1.096	0.854-1.146	A
	H		15	1.080	0.903-1.097	0.857-1.145	A
	I		20	1.057	0.903-1.097	0.855-1.145	A
Copper	G	AA/FU	15	1.005	0.904-1.096	0.859-1.141	A
	H		15	0.963	0.904-1.096	0.857-1.143	A
	I		20	0.992	0.904-1.096	0.857-1.143	A
Sodium	J	IC	5	0.902	0.863-1.137	0.784-1.216	A
	L		8	0.921	0.862-1.138	0.789-1.211	A
Lithium	J	AA/FL	20	1.069	0.859-1.141	0.788-1.212	A
	L		20	1.046	0.868-1.142	0.787-1.213	A
Silica	S	Spec	500	1.102	0.906-1.094	0.859-1.141	A +
	T		500	0.991	0.909-1.091	0.860-1.136	A
	U		300	0.857	0.907-1.093	0.857-1.143	A +
Ammonia	M	SIE	1000	0.974	0.902-1.098	0.856-1.147	A
	N		500	0.887	0.902-1.098	0.856-1.147	A+
	O		1000	0.987	0.902-1.098	0.856-1.147	A
Rerun	M		600	0.952	0.902-1.098	0.856-1.147	A
Hydrazine	P	Spec	10	0.980	0.922-1.078	0.888-1.118	A
	Q		20	0.946	0.922-1.078	0.888-1.118	A
	R		15	0.928	0.922-1.078	0.888-1.118	A

Analyte	Method ¹	Concn ²	Ratio ³	Acceptance Ranges ⁴		Result ⁵
				+ 2sd	+ 3sd	
<u>ppm</u>						
Boron	D Titr	1000	1.005	0.979-1.021	0.968-1.032	A
	E	1500	1.002	0.979-1.021	0.968-1.032	A
	F	1200	0.993	0.979-1.021	0.968-1.032	A

- Methods: Titr - Titration
 IC - Ion Chromatography
 Spec - Spectrophotometry
 AA/FL - Atomic absorption spectrophotometry (flame)
 AA/FU - Atomic Absorption Spectrophotometry (graphite furnace)
- Conc: Approximate concentration analyzed.
- Ratio of Licensee mean value to NRC mean value.
- The SD in the fifth and sixth columns represents the coefficient of variation obtained from averaging licensee data from the preceding cycle (Table C.1 of NUREG/CR-5244). The licensee value is considered to be in agreement if it falls within the ± 2 SD range; a qualified agreement if it lies outside ± 2 SD but within ± 3 SD; and in disagreement if it is outside the ± 3 SD range.
- Result:
 A = Agreement: Licensee value is within ± 2 SDs of the NRC mean value.
 A+ = Qualified agreement, licensee is between ± 2 and ± 3 SDs of the NRC value.
 D = Disagreement: licensee value is outside ± 3 SDs.