

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-266/90015(DRSS); 50-301/90015(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: July 30 - August 3, 1990

Inspector: *A. G. Januska*
A. G. Januska

8/22/90
Date

Accompanied By: C. G. Jones

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

8/22/90
Date

Inspection Summary

Inspection on July 30 - August 3, 1990 (Report Nos. 50-266/90015(DRSS); 50-301/90015(DRSS))

Areas Inspected: Routine announced inspection of the licensee's confirmatory measurements program (IP 84750) included management organization, procedures, analysis of split samples, quality assurance/quality control of radiological measurements and audits. Performance oriented audits and stability of chemistry section personnel are licensee strengths.

DETAILS

1. Persons Contacted

- M. Canty, Technician, Chemistry
- D. Evers, Technician, Chemistry
- ¹F. Flentje, Specialist-Regulatory Services
- ¹T. Fredrichs, Superintendent-Chemistry
- D. Gehrke, Lab Supervisor
- ¹G. Maxfield, Manager PBNP
- R. Parloto, Lab Supervisor
- ¹T. Slack, Specialist-Chemistry
- A. Pusztai, Project Engineer-NQAD

- ¹C. Vanderneit, Senior Resident Inspector, NRC

¹ Denotes those present at the Exit Meeting on August 3, 1990

2. Management Controls and Organization

The Chemistry Section personnel complement has increased by one since the previous inspection in this area. The section has 11 ANSI N18.1-1971 qualified Chemistry Technicians. A Lab Supervisor was added in February 1989 and since June 1990 the Superintendent-Chemistry answers directly to the Plant Manager rather than through a General Superintendent.

No violations or deviations were identified by the NRC inspectors.

3. Radiological Confirmatory Measurements (IP 84750)

Seven samples (air particulate, air particulate spike, charcoal, charcoal spike, gas, reactor coolant and spent fuel pool (SFP)) were analyzed for gamma emitting isotopes by the licensee and in the Region III Mobile Laboratory onsite. Comparisons were made on combinations of three of the licensee's operable detectors. Results of the sample comparisons are given in Table 1; the comparison criteria are given in Attachment 1. The licensee achieved 46 agreements out of 51 comparisons.

Agreements were achieved for the SFP sample which was used to simulate liquid waste. A portion of the SFP sample has been sent to the licensee's contractor and will be analyzed for gross beta, H-3, Sr-89 and Sr-90 and the results reported to Region III for comparison with an analysis by the NRC Reference Laboratory on a split of the same sample (Open Item 50-266/90015-01; 50-301/90015-01). The initial gas sample collected and analyzed yielded only Xe-133 in the inspectors' sample because of low concentration and the size of the geometry used. A subsequent attempt to collect another sample failed.

A reactor coolant sample (RCS), used to quantify non-iodine gamma emitters, indicated one disagreement for Nb-95 on the licensee's second count of the sample. No reason for the disagreement other than the possibility of excessive decay could be found. Although iodines are not quantified in this sample, the results indicated potential

nonconservative disagreements for I-132 and I-134 (not shown in Table 1) with a Licensee/NRC ratio of 0.76. A second RCS sample collected for iodine comparisons in the licensee's normal geometry (5/50) resulted in a disagreement for I-132 on Detector 1 and disagreements for I-134 on both Detectors 1 and 4. These disagreements were nonconservative and had ratios similar to those discussed previously. Settling and plateout were ruled out in the NRC portion of the sample by counting the emptied and rinsed sample bottles. A third sample was collected and split between the licensee's 1 liter waste geometry (all agreements on the SFP sample), the NRC and the licensee's 5/50 geometry (results not shown in Table 1). The 1 liter geometry results were all in agreement, whereas the 5/50 geometry resulted in a disagreement for I-134 on Detector 1 with a ratio of 0.70. In examining the data, it appeared that the sample concentration or size may have been too small which was indicated by the dead time on the licensee's results or the decay time too long. The licensee is examining sample concentration and size, decay time and nuclide library contents to correct these results (Open Item 50-266/90015-02; 50-301/90015-02).

Air particulate and charcoal adsorber release path samples analyzed were verified as being less than the lower limit of detection. Spiked samples not currently used for calibrations were counted as unknowns and revealed a disagreement for Ba-139 (which could not be explained) on one of the two detectors for the air particulate sample. There were no disagreements reported with the adsorber in the iodine energy range however disagreements in lower energies (not shown in Table 1) were present.

No violations or deviations were identified by the NRC inspectors.

4. Audits (IP 84750)

The inspectors reviewed Audit Report Nos. A-TS-89-111, A-P-89-15, A-TS-89-06 and A-TS-90-02. The audits were in sufficient depth and appeared technically adequate. The qualifications of chemistry auditors were discussed with management. Although none of the auditors have chemistry backgrounds, they are able to perform audits of this discipline by researching the requirements. Technical assistance is used and the inspectors noted an increase in the depth and quality of the audit when such a person is part of the audit team.

No violations or deviations were identified by the NRC inspectors.

5. Quality Assurance/Quality Control of Radiological Measurements (IP 84750)

The inspectors reviewed the counting room Quality Control. The licensee performs daily QC checks on various counting room instruments, and machine plots the results daily using a Shewhart Control Chart. The chart limits are +/- 5 percent for efficiency, +/- a moving 3 standard deviations of the mean based on 30 points and a 30 point moving average. The inspectors noted that the checks are performed

when chemistry coverage is provided and that the licensee maintains a historical log book with each counter. The log book records notable trends, detector operation and maintenance of the system. The charts were changed daily and the log books were up-to-date.

The inspectors also reviewed both the radiochemistry laboratory and count room operations, including physical facilities. Housekeeping was generally good; the laboratory work space, and the counting room work space (although minimal) are adequate for the size of the work force. The Chemistry Technicians and the Health Physics Technicians observed during sample acquisition, preparation and during sample release used satisfactory laboratory and monitoring techniques.

No violations or deviations were identified by the NRC inspectors.

6. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspectors, and which involve some action on the part of the NRC or licensee, or both. Open items disclosed during the inspection are discussed in Section 3.

7. Exit Interview

The scope and findings of the inspection were discussed with licensee representatives (Section 1) at the conclusion of the inspection on August 3, 1990. The inspectors discussed the RCS and charcoal difficulties in detail and commented on the quality of the audits reviewed. Licensee representatives did not identify any documents or processes reviewed during the inspection as proprietary.

Attachments:

1. Table 1, Radiological Interlaboratory Split Sample Results, 3rd Quarter 1990
2. Attachment 1, Criteria for Comparing Radiological Measurements

TABLE 1
 U.S. NUCLEAR REGULATORY COMMISSION
 OFFICE OF INSPECTION AND ENFORCEMENT
 CONFIRMATORY MEASUREMENTS PROGRAM
 FACILITY: POINT BEACH
 FOR THE THIRD QUARTER OF 1990

SAMPLE	NUCLIDE	NRC VAL.	NRC ERR.	LIC.VAL.	LIC.ERR.	RATIO	RESOL.	RESULT
RCS	MO-99	3.77E-04	3.88E-05	2.43E-04	0.00E+00	0.64	9.7	A
DET 1	NB-95	3.54E-04	3.80E-05	2.22E-04	5.29E-05	0.63	9.3	A
RCS	NB-95	2.98E-04	4.55E-05	0.00E+00	0.00E+00		6.5	D
DET 4	MO-99	2.65E-04	2.41E-05	2.36E-04		0.89	11.0	A
FUEL POOL	CO-58	3.74E-05	8.23E-07	4.03E-05	1.42E-06	1.08	45.4	A
DET 4	CO-60	2.13E-04	1.58E-06	2.09E-04	2.47E-06	0.98	134.8	A
	SN-113	1.56E-05	7.04E-07	1.51E-05	8.04E-07	0.97	22.2	A
	SB-124	5.70E-05	7.46E-07	5.12E-05	1.37E-06	0.90	76.4	A
	SB-125	1.20E-04	1.96E-06	1.24E-04	4.10E-06	1.03	61.2	A
	CS-137	2.95E-05	7.71E-07	3.08E-05	1.23E-06	1.04	38.3	A
FUEL POOL	CO-58	3.73E-05	8.34E-07	4.01E-05	1.31E-06	1.08	44.7	A
DET 2	CO-60	2.16E-04	1.67E-06	2.22E-04	2.44E-06	1.03	129.3	A
	SB-124	5.56E-05	7.32E-07	5.32E-05	1.34E-06	0.96	76.0	A
	SB-125	1.18E-04	1.97E-06	1.23E-04	3.91E-06	1.04	59.9	A
	CS-137	2.77E-05	7.23E-07	3.11E-05	1.18E-06	1.12	38.3	A
GAS DET 2	XE-133	1.10E-04	3.20E-06	1.36E-04	7.59E-06	1.24	34.4	A
	XE-135	1.48E-06	4.57E-07	9.82E-07	1.10E-07	0.66	3.2	N
GAS DET 1	XE-133	1.08E-04	3.31E-06	1.28E-04	6.99E-06	1.19	32.6	A
AP SPIKE	CO-57	1.01E-03	3.03E-05	1.03E-03	3.95E-05	1.02	33.3	A
DET 4	CO-60	8.96E-03	2.45E-04	9.85E-03	1.63E-04	1.10	36.6	A
	AM-241	9.72E-03	2.05E-04	1.13E-02	5.81E-04	1.16	47.4	A
	Y-88	7.44E-04	7.09E-05	8.87E-04	5.43E-05	1.19	10.5	A
	CD-109	7.22E-02	1.16E-03	8.14E-02	3.09E-03	1.13	62.2	A
	SN-113	7.80E-04	7.93E-05	7.22E-04	4.86E-03	0.93	9.8	A
	CS-137	8.36E-03	1.63E-04	9.87E-03	2.94E-04	1.18	51.3	A
	CE-139	5.06E-04	3.11E-05	5.07E-04	3.62E-05	1.00	16.3	A
	BA-139	3.62E-02	2.28E-03	5.25E-02	3.69E-03	1.45	15.9	D
AP SPIKE	CO-57	1.01E-03	3.03E-05	1.10E-03	4.30E-05	1.09	33.3	A
DET 1	CO-60	8.96E-03	2.45E-04	1.09E-02	1.92E-04	1.22	36.6	A

SAMPLE	NUCLIDE	NRC VAL.	NRC ERR.	LIC.VAL.	LIC.ERR.	RATIO	RESCL.	RESULT
	AM-241	9.73E-03	2.05E-04	1.19E-02	5.38E-04	1.22	47.5	A
	Y-88	7.44E-04	7.09E-05	9.85E-04	5.90E-05	1.32	10.5	A
	CD-109	7.22E-02	1.16E-03	9.00E-02	3.48E-03	1.25	62.2	A
	SN-113	7.80E-04	7.93E-05	7.74E-04	5.39E-05	0.99	9.8	A
	CS-137	8.36E-03	1.63E-04	1.04E-02	3.18E-04	1.24	51.3	A
	CE-139	5.06E-04	3.11E-05	5.14E-04	3.62E-05	1.02	16.3	A
	BA-139	3.62E-02	2.28E-03	4.40E-02	3.14E-03	1.22	15.9	A
CHARCOAL	CO-60	1.54E-02	2.10E-04	1.60E-02	1.80E-04	1.04	73.3	A
SPIKE	SN-113	6.66E-04	6.61E-05	7.27E-04	4.23E-05	1.09	10.1	A
DET 2	CS-137	1.61E-02	1.80E-04	1.79E-02	4.72E-04	1.11	39.4	A
CHARCOAL	CO-60	1.54E-02	2.10E-04	1.57E-02	1.86E-04	1.02	73.3	A
SPIKE	SN-113	6.66E-04	6.61E-05	7.49E-04	4.48E-05	1.13	10.1	A
DET 4	CS-137	1.61E-02	1.80E-04	1.76E-02	4.73E-04	1.09	89.4	A
RCS	I-131	1.51E-03	1.05E-04	1.17E-03	3.55E-04	0.77	14.4	A
DET 1	I-132	2.02E-02	2.43E-04	1.49E-02	1.27E-03	0.74	83.1	D
	I-133	2.08E-02	1.47E-04	1.94E-02	1.15E-03	0.93	141.5	A
	I-134	6.66E-02	1.14E-03	4.43E-02	5.86E-03	0.67	58.4	D
	I-135	4.00E-02	6.08E-04	4.02E-02	3.40E-03	1.01	65.8	A
RCS	I-131	1.51E-03	1.05E-04	1.38E-03	3.49E-04	0.91	14.4	A
DET 4	I-132	2.02E-02	2.43E-04	1.63E-02	1.25E-03	0.81	83.1	A
	I-133	2.08E-02	1.47E-04	2.09E-02	1.15E-03	1.00	141.5	A
	I-134	6.66E-02	1.14E-03	5.19E-02	6.00E-03	0.78	58.4	D
	I-135	4.00E-02	6.08E-04	3.69E-02	3.10E-03	0.92	65.8	A

A = AGREEMENT
D = DISAGREEMENT
N = NO COMPARISON
* = CRITERIA RELAXED

ATTACHMENT 1

CRITERIA FOR COMPARING ANALYTICAL MEASUREMENTS

This attachment provides criteria for comparing results of capability tests and verification measurements. The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of this program.

In these criteria, the judgment limits are variable in relation to the comparison of the NRC's value to its associated one sigma uncertainty. As that ratio, referred to in this program as "Resolution", increases, the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement should be considered acceptable as the resolution decreases. The values in the ratio criteria may be rounded to fewer significant figures to maintain statistical consistency with the number of significant figures reported by the NRC Reference Laboratory, unless such rounding will result in a narrowed category of acceptance.

<u>RESOLUTION</u>	<u>RATIO = LICENSEE VALUE/NRC REFERENCE VALUE</u>
	<u>Agreement</u>
<3	No Comparison
<u>≥</u> 3 and <4	0.4 - 2.5
<u>≥</u> 4 and <8	0.5 - 2.0
<u>≥</u> 8 and <16	0.6 - 1.67
<u>≥</u> 16 and <51	0.75 - 1.33
<u>≥</u> 51 and <200	0.80 - 1.25
<u>≥</u> 200	0.85 - 1.13

Some discrepancies may result from the use of different equipment, techniques, and for some specific nuclides. These may be factored into the acceptance criteria and identified on the data sheet.