



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

MAY 09 1977

Docket No. 50-305

Wisconsin Public Service  
Corporation  
ATTN: Mr. E. W. James, Senior  
Vice President  
Power Generation and  
Engineering  
P.O. Box 1200  
Green Bay, WI 54305

Gentlemen:

This refers to the inspection conducted by Mr. B. Jorgensen of this office on April 28 and 29, 1977, of activities at the Kewaunee Nuclear Power Plant authorized by NRC Operating License No. DPR-43 and to the discussion of our findings with Mr. Luoma and others of your staff at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

No items of noncompliance with NRC requirements were identified during the course of this inspection.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room, except as follows. If this report contains information that you or your contractors believe to be proprietary, you must apply in writing to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. The application must include a full statement of the reasons for which the information is considered proprietary, and should be prepared so that proprietary information identified in the application is contained in an enclosure to the application.

Wisconsin Public Service  
Corporation

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MAY 09 1977

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

Sincerely,

James M. Allan, Chief  
Fuel Facility and  
Materials Safety Branch

Enclosure: IE Inspection  
Report No. 50-305/77-08

cc w/encl:  
Mr. C. Luoma, Plant  
Superintendent  
Central Files  
Reproduction Unit NRC 20b  
PDR  
Local PDR  
NSIC  
TIC

OFFICE >	RILL (2)	RILL <i>30/for</i>	RILL <i>JA</i>	RILL <i>mcg</i>		
SURNAME >	Jorgensen/lb	Pagliario	Allan	Hunter <i>fw</i>		
DATE >	5/6/77					

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-305/77-08

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

Licensee: Wisconsin Public Service Corporation  
P.O. Box 1200  
Green Bay, WI 54305

Facility Name: Kewaunee Nuclear Power Plant

Inspection at: Kewaunee Plant site, Kewaunee, WI

Inspection conducted: April 28 and 29, 1977

Inspector: *B. L. Jorgensen*  
B. L. Jorgensen

5/6/77  
(Date)

Approved by: *J. A. Pagliaro*  
J. A. Pagliaro, Chief  
Environmental and Special  
Projects Section

5/6/77  
(Date)

Inspection Summary

Inspection on April 28 and 29, 1977 (Report No. 50-305/77-08)

Areas Inspected: Routine, announced Confirmatory Measurements inspection including licensee programs for control of quality in laboratory radio-analyses; comparative results on analyses of plant effluent samples; and collection of effluent samples for future comparative analyses. The inspection involved 12 onsite hours by one inspector.

Results: For the three areas inspected, no items of noncompliance or deviations were identified in any areas.

DETAILS

1. Persons Contacted

\*  
\*Mr. J. Richmond,  
\*Mr. G. Jarvela,  
\*Mr. W. Winnouski,  
Mr. W. Flint,

The inspector also had discussions with three other licensee employees, all members of the technical chemistry or health physics staffs.

\*  
\* Denotes those present at the exit interview.

2. Program for Quality Control in Laboratory Radioanalysis

The inspector reviewed the following licensee procedures for control of quality in conduct of radiochemistry laboratory operations, with emphasis on selected procedures prepared or revised since the last Confirmatory Measurements inspection.<sup>1/</sup>

RC-HP-48A	Introduction - Quality Assurance for Count Room Equipment	8/20/75
RC-HP-48B	Nuclear Counting Statistics	10/5/76
RC-HP-48C	Performance Test Procedure - GeLi Detector	10/5/76
RC-HP-48D	Performance Test Procedure - Auto Planchet Counter	10/5/76
RC-HP-48E	Preparation of Particulate Source Standards	10/29/76
RC-HP-49	Counting Techniques	4/22/75
RC-HP-52	Multi-channel Analyzer	4/22/75

The inspector examined logs, checksheets and other records resulting from the licensee's quality assurance activities which reflect adherence to procedural controls. The licensee performs frequent background, calibration and performance checks on each of the instruments used in performing measurements for the Confirmatory Measurements program. Acceptability criteria are established and used. No items of noncompliance or deviations were identified.

3. Results of Comparative Analyses

The results of comparative analyses performed on effluent samples split at the plant in July, 1976 and on spiked samples provided

1/ IE Inspection Rpt No. 50-305/76-11.

to the licensee by NRC, are shown in Table I. The criteria for comparing measurement results are given in the Attachment. On 12 sample comparisons, the licensee's results yielded 8 agreements and 4 disagreements. The inspector discussed comparative results with the licensee, with emphasis on those results not yielding acceptable comparisons.

The licensee's reported results on analysis of a sample of gaseous waste for Xe-133 and Kr-85 yielded unacceptable comparisons. The licensee's results were four to five times greater than those of the NRC reference laboratory. If this difference is real and representative, the licensee may have overreported releases of these nuclides near the time of this comparison. Licensee results on analysis of two samples collected with the NRC sample, however, indicate the samples may not have been real duplicates. The licensee performed a new calibration for analysis of gaseous waste in the geometry currently being utilized in April, 1977, with resultant small changes in efficiency factors. This item will be examined further at a future inspection.

The licensee's failure to identify Co-58 and Mn-54 on a plant particulate filter resulted in unacceptable comparisons for these two nuclides. Discussions were held with the licensee concerning minimum activity levels which are detectable by the licensee. These vary in accordance with the level of "background" being experienced in the counting room on any given day. Since the previous inspection,<sup>2/</sup> the licensee has established and is using decontamination criteria which afford detectability to levels well below the limits of the Technical Specifications. However, detectability at the limits established solely for the Confirmatory Measurements program has not yet been demonstrated. This item will be examined further during a subsequent inspection.

No items of noncompliance or deviations were identified in the above areas.

#### 4. Effluent Sampling

During this inspection, samples of liquid and gaseous waste and a particulate and charcoal adsorber filter were obtained for future comparative analyses. In addition, the licensee will be provided with a spiked liquid sample to be analyzed for Sr-89 and Sr-90. Results of the comparative analyses will be examined at a future inspection.

2/ Ibid.

5. Exit Interview

The inspector met with Mr. Luoma, the plant manager, and members of his staff (denoted in paragraph 1) at the conclusion of the inspection on April 29, 1977. The inspector summarized the purpose and scope of the inspection and the findings.

Attachments:

1. Table 1
2. Attachment 1, Criteria for Comparing Analytical Measurements

TABLE I

U S NUCLEAR REGULATORY COMMISSION  
 OFFICE OF INSPECTION AND ENFORCEMENT  
 CONFIRMATORY MEASUREMENTS PROGRAM  
 FACILITY: KEWAUNEE  
 FOR THE 3 QUARTER OF 1976

SAMPLE	ISOTOPE	-----NRC-----		---LICENSEE---		Z VALUE	-----NRC:LICENSEE-----		RES	T
		RESULT	ERROR	RESULT	ERROR		PCT	RATIO		
L WASTE	SETA	8.9E-07	3.0E-08	7.2E-07	0.0	4.4E+00	1.9E+01	8.1E-01	3.0E+01	A
L SPIKED	SR 89	4.1E-03	2.0E-04	4.3E-03	0.0	6.9E-01	4.9E+00	1.0E+00	2.0E+01	A
	SR 90	3.1E-04	1.0E-05	2.7E-04	0.0	3.0E+00	1.3E+01	8.7E-01	3.1E+01	A
OFF GAS	XE 133	1.3E-04	6.0E-06	5.5E-04	0.0	1.6E+01	3.2E+02	4.2E+00	2.2E+01	D
	KR 85	1.0E-03	1.0E-04	4.9E-03	0.0	7.8E+00	3.9E+02	4.9E+00	1.0E+01	D
P FILTER	CG 58	3.6E-05	5.0E-06	0.0	0.0	0.0	0.0	0.0	7.2E+00	D
	RN 54	1.7E-05	3.0E-06	0.0	0.0	0.0	0.0	0.0	5.7E+00	D
F SPIKED	CE 144	2.1E-03	1.0E-04	2.1E-03	0.0	0.0	0.0	1.0E+00	2.1E+01	A
	CS 137	1.4E-03	3.0E-05	1.3E-03	0.0	2.4E+00	7.1E+00	9.3E-01	4.7E+01	A
	MN 54	4.4E-04	1.0E-05	4.0E-04	0.0	3.0E+00	9.1E+00	9.1E-01	4.4E+01	A
	ZN 65	8.2E-04	2.0E-05	7.4E-04	0.0	3.0E+00	9.3E+00	9.0E-01	4.1E+01	A
CO 60	1.2E-03	4.0E-05	1.2E-03	0.0	0.0	0.0	1.0E+00	3.0E+01	A	

T TEST RESULTS:  
 A=AGREEMENT  
 D=DISAGREEMENT  
 P=POSSIBLE AGREEMENT  
 N=NO COMPARISON

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 Reference Laboratory'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. The acceptance category reported will be the narrowest into which the ratio fits for the resolution being used.

<u>RESOLUTION</u>	<u>RATIO = LICENSEE VALUE/NRC REFERENCE VALUE</u>		
	<u>Agreement</u>	<u>Possible Agreement "A"</u>	<u>Possible Agreeable "B"</u>
<3	No Comparison	No Comparison	No Comparison
>3 and <4	0.4 - 2.5	0.3 - 3.0	No Comparison
>4 and <8	0.5 - 2.0	0.4 - 2.5	0.3 - 3.0
>8 and <16	0.6 - 1.67	0.5 - 2.0	0.4 - 2.5
>16 and <51	0.75 - 1.33	0.6 - 1.67	0.5 - 2.0
>51 and <200	0.80 - 1.25	0.75 - 1.33	0.6 - 1.67
>200	0.85 - 1.18	0.80 - 1.25	0.75 - 1.33

"A" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is greater than 250 keV.

Tritium analyses of liquid samples.

"B" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is less than 250 keV.

Sr-89 and Sr-90 determinations.

Gross beta, where samples are counted on the same date using the same reference nuclide.