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

JUL 2 5 1975

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

Docket No. 50-305

Gentlemen:

This refers to the inspection conducted by Mr. B. L. Jorgensen of this office on July 2-3, 1975, 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.

A copy of our report of this inspection is enclosed and identifies the areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspector.

No items of noncompliance with NRC requirements were identified within the scope 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. If this report contains any information that you or your contractors believe to be proprietary, it is necessary that you make a written application to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. Any such application must include a full statement of the reasons for which it is claimed that the information is proprietary, and should be prepared so the proprietary information identified in the application is contained in a separate part of the document. Unless we receive an application to withhold information or are otherwise contacted within the specified time period, the written material identified in this paragraph will be placed in the Public Document Room.

No reply to this letter is necessary; however, should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

Gaston Fiorelli, Chief
Reactor Operations Branch

Enclosure:
IE Inspection Rpt No. 050-305/75-11

bcc w/encl:
PDR
Local PDR
NSIC
TIC
OGC, Beth, P-506A

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

REGION III

Report of Confirmatory Measurements Inspection

IE Inspection Report No. 050-305/75-11

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

Kewaunee Nuclear Plant
Kewaunee, Wisconsin

License No. DPR-43
Category: C

Type of Licensee: PWR (W)

Type of Inspection: Routine, Unannounced

Dates of Inspection: July 2-3, 1975

Principal Inspector: B. L. Jorgensen 7/21/75 (Date)

Accompanying Inspector: None

Other Accompanying Personnel: None

Reviewed By: Jesse A. Pagliaro 7/23/75 (Date)
Senior Environmental Scientist
Environmental and Special Projects Section
Radiological and Environmental Protection Branch

SUMMARY OF FINDINGS

Inspection Summary

Inspection conducted on July 2 and 3, (75-11): Reviewed records and documentation pertaining to radioanalytical laboratory quality control programs; discussed said programs with licensee personnel; discussed results of comparative analyses of plant effluent samples with emphasis on results not in acceptable agreement.

Enforcement Items

None.

Licensee Action on Previously Identified Enforcement Items

No previously identified enforcement items within the scope of this inspection.

Other Significant Items

A. Systems and Components

None.

B. Facility Items (Plans and Procedures)

None.

C. Managerial Items

None.

D. Noncompliance Identified and Corrected by Licensee

None.

E. Deviations

None.

F. Status of Previously Reported Unresolved Items

None.

Management Interview

A management interview was conducted with Messrs. Luoma, Richmond, Jarvela and Larsen at the conclusion of the inspection on July 3, 1975. The following items were discussed with the licensee representatives:

A. The NRC inspector discussed the scope of this specific inspection. (Paragraph 2, Report Details)

B. The inspector summarized his review of licensee programs to assure quality in laboratory radioanalytical work. The licensee described plans to improve documentation, scheduling and stock control. (Paragraph 3, Report Details)

C. The results of comparative analyses of plant effluent samples pertinent to this inspection were discussed, with emphasis on two results not yielding acceptable comparisons. (Paragraphs 4 and 5, Report Details)

REPORT DETAILS

1. Persons Contacted

C. Luoma, Plant Superintendent

J. Richmond, Technical Supervisor

C. Jarvela, Health Physics Supervisor

C. Larsen, Radiochemistry Supervisor

M. Reinhardt, Senior Radiation Technician

W. Flint, Radiochemical Technician

2. General

The licensee is required to measure the quantities and concentrations of radioactive material in effluents from his facility to assure that they are within limits specified in his license and in NRC regulations. This inspection consisted of an examination of the licensee's programs to control quality of radioanalytical measurements and of a test of the licensee's measurements of radioactivity in actual samples of his effluents. The licensee's Technical Specifications and their referenced procedures were used as the primary inspection criteria for examination of the program for quality control. The confirmatory measurements test is based on a comparison of the licensee's measurements with those of the NRC's reference laboratory. The two laboratories make measurements on the same samples or on duplicates or splits of the same samples. The measurements made by the NRC reference laboratory are referenced to the National Bureau of Standards radioactivity measurements system by laboratory intercomparisons.

3. Licensee Program for Quality Control of Analytical Measurements

The licensee possessed written procedures for sampling, handling and counting techniques related to effluent analysis. Scheduling, including calibration schedules, is covered by the written procedures. The inspector noted that calibration procedures and scheduling are presently distributed among various Surveillance Procedures, Chemistry Procedures, and Health Physics Procedures and that no master schedule presently exists. The licensee stated that they are in the process of separating the calibration

procedures from the other procedures so that they can be individually numbered. This is being done to enable computer utilization for scheduling control to include calibration schedules.

The inspector examined licensee documentation pertaining to equipment calibrations and calibration checks for those instruments used in radiochemical effluent analyses. The licensee has not developed a procedure for documenting performance of required checks. The information is presently in variable format and is not centrally located. Further, new procedures changing some calibration or calibration check schedules have recently been generated. These factors combine to make auditing of program activities by the Quality Assurance or other group difficult, as adherence to the procedures is somewhat obscured.

The above items have been noted in audit reports by the corporate Quality Assurance Group, which were reviewed by the inspector. These reports have made several recommendations for changes in program format and documentation to gain conformance with the overall Wisconsin Public Service Corporation Operational Quality Assurance Program. The licensee stated that all of the concerns noted in the audits would be addressed and that activities in response were underway in each area. These items will be examined further at a subsequent inspection.

4. Analytical Results

This inspection showed some of the licensee's measurements on these samples are acceptable under the test criteria used by the Office of Inspection and Enforcement for comparing measurements results (see the Attachment). However, some of the licensee's measurements are not acceptable under the test criteria. The absence of quantifiable activity on a particulate filter sample precluded comparison of results for that media. The types of samples tested and the results of measurements were:

A. Type of Sample: Liquid Waste (1/75)
(Results in units of uCi/ml)

Acceptable

Radionuclide	NRC Reference Measurement	Licensee's Measurement
gross β^-	2.6 ± 0.1 E-04	2.2 E-04
H-3	5.78 ± 0.01 E-02	5.3 E-02
Sr-89	1.55 ± 0.07 E-06	1.0 E-06
Cs-134	4.7 ± 0.1 E-05	4.28 E-05
Cs-137	1.77 ± 0.05 E-04	1.68 E-04
Mn-54	1.37 ± 0.05 E-05	1.07 E-05
Co-60	1.63 ± 0.06 E-05	1.03 E-05
Co-58	1.18 ± 0.03 E-04	1.06 E-04

Not Acceptable

Radionuclide	NRC Reference Measurement	Licensee's Measurement
I-131	2.5 ± 0.1 E-04	1.24 E-04

B. Type of Sample: Gaseous Waste (1/75)
(Results in units of uCi/ml)

Acceptable: None

Not Acceptable

Radionuclide	NRC Reference Measurement	Licensee's Measurement
Xe-133	5.5 ± 0.2 E-05	1.55 E-05

C. Type of Sample: Charcoal Adsorbers (1/75)
(Results in units of uCi/sample)

Acceptable

Radionuclide	NRC Reference Measurement	Licensee's Measurement
I-131	9.0 ± 0.5 E-04	1.21 E-03
Ba-133*	7.61 ± 0.19 E-02	7.08 E-02

*Sample Standard prepared by NRC reference laboratory.

Not Acceptable: None

5. Samples Not Meeting Acceptance Criteria

The licensee's reported results on analysis of a sample of liquid waste for I-131 and on a sample of gaseous waste for Xe-133 have yielded unacceptable results on comparison with the results of the NRC reference laboratory.

The licensee's reported result for I-131 in liquid waste is approximately 50% less than the result reported by the reference laboratory. If this difference is real and representative of routine licensee analyses for this nuclide, the licensee may have underreported releases in liquid effluents near the time of this comparison. Reported releases, of which only a fraction was I-131, were less than 2% of the Technical Specifications limits for total activity. The I-131 concentration averaged less than one-tenth of one percent of the limits of 10 CFR Part 20. All other nuclides identified by gamma isotopic analysis yielded acceptable comparisons. This is the initial comparison for I-131 in liquid waste. This item will be re-examined at a subsequent inspection.

The licensee's result on analysis of Xe-133 in gaseous waste is approximately 70% less than that reported by the reference laboratory. If this difference is real and representative, the licensee may have underreported releases of Xe-133 by about 70% near the time of this comparison. The licensee had previously analyzed Xe-133 in a sample of gaseous waste with results a factor of about 2.5 times larger than the reference laboratory result. The licensee's reported releases of Xe-133 were at less than 1% of applicable limits both for average and for maximum release rates. This item will be re-examined during a subsequent inspection.

Attachment:
Attachment 1

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 judgement limits are variable in relation to the comparison of the NRC Reference Laboratory's value to its associated 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 must be considered acceptable as the resolution decreases.

RESOLUTION	RATIO = LICENSEE VALUE/NRC REFERENCE VALUE		
	Agreement	Possible Agreement A	Possible Agreement B
3	0.4 - 2.5	0.3 - 3.0	No Comparison
4 - 7	0.5 - 2.0	0.4 - 2.5	0.3 - 3.0
8 - 15	0.6 - 1.66	0.5 - 2.0	0.4 - 2.5
16 - 50	0.75 - 1.33	0.6 - 1.66	0.5 - 2.0
51 - 200	0.80 - 1.25	0.75 - 1.33	0.6 - 1.66
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.

89Sr and 90Sr Determinations.

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