

Reactor Facilities Br.

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

JAN 28 1976

Northern States Power Company
ATTN: Mr. Leo Wachter, Vice President
Power Production and System
Operation
414 Nicollet Mall
Minneapolis, Minnesota 55401

Docket No. 50-263

Gentlemen:

This refers to the inspection conducted by Mr. Jorgensen and Dr. Oestmann of this office on January 12 and 13, 1976, of activities at the Monticello Nuclear Plant, authorized by NRC Provisional Operating License No. DPR-22, and to the discussion of our findings with Mr. Larson 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 inspectors.

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



Northern States Power
Company

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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 Fioralli, Chief
Reactor Operations and
Nuclear Support Branch

Enclosure:
IE Inspection Report
No. 050-263/76-01

cc w/encl:
C. E. Larson, Plant
Manager

bcc w/encl:
PDR
Local PDR
NSIC
TIC
Anthony Roisman, Esq.,
Attorney

UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Confirmatory Measurements Inspection

IE Inspection Report No. 050-263/76-01

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

Monticello Nuclear Plant License No. DPR-22
Monticello, Minnesota Category: C

Type of Licensee: BWR (GE) 1670 MWt

Type of Inspection: Routine, Announced

Dates of Inspection: January 12 and 13, 1976

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

1/23/76
(Date)

Accompanying Inspector: *M. J. Oestmann*
M. J. Oestmann

1/23/76
(Date)

Other Accompanying Personnel: None

Reviewed By: *Jesse A. Pagliaro*
Jesse A. Pagliaro
Section Leader
Environmental and Special
Projects

1/23/76
(Date)

SUMMARY OF FINDINGS

Inspection Summary

Routine, announced confirmatory measurements inspection conducted January 12 and 13, (76-01): discussed and reviewed programs for control of quality in laboratory radioanalysis; reviewed and discussed results of comparative analyses of previous effluent and standard radiological samples; and collected new effluent samples for subsequent comparative analysis.

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

No significant items identified.

B. Facility Items (Plans and Procedures)

No significant items identified.

C. Managerial Items

Licensee participation in an informal comparative analysis program, with the laboratory of the Minnesota Department of Health, was terminated on January 1, 1976.

D. Noncompliance Identified and Corrected by Licensee

None.

E. Deviations

None.

F. Status of Previously Reported Unresolved Items

No previously reported unresolved items within the scope of this inspection.

Management Interview

A management interview was conducted with Messrs. Larson, Eliason and Jacobson on January 13, 1976. The following items were discussed with the licensee representatives:

- A. The NRC inspectors discussed the scope and intent of this specific inspection. (Paragraph 2, Report Details)
- B. The results of comparative analyses performed pursuant to this inspection were reviewed, with emphasis on the single result not yielding an acceptable comparison. (Paragraphs 3 and 4, Report Details)
- C. Licensee programs for control of quality in radioanalysis were discussed. The licensee stated that appropriate procedures would be expanded and updated to reflect current laboratory practice, and that implementation of a program for replicate and/or blank analyses in conjunction with quarterly analyses of particulate filters for radiostrontiums would be considered. (Paragraph 5, Report Details)

REPORT DETAILS

1. Persons Contacted

C. E. Larson, Plant Superintendent
L. Eliason, Radiation Protection Engineer
R. Jacobson, Plant Chemist
J. Peterson, Laboratory Coordinator
E. Lieftring, Radiation Technician

2. General

This inspection consisted of an examination of the licensee's programs and practices to assure quality in laboratory radiochemical analyses. Assignments of responsibility and authority for program conduct, auditing and reporting systems, and laboratory procedures were selectively examined and discussed. Laboratory and counting room facilities and instrumentation were also examined.

The inspection also included a test of the licensee's capabilities for measurement of radioactivity in actual plant effluent samples and in a standard sample. The test consists of comparing the licensee's measurements with those of the NRC's reference laboratory. The two laboratories perform measurements on the same samples, or on duplicate or split samples. The measurements made by the NRC reference laboratory are referenced to the National Bureau of Standards Radioactivity Measurements System by laboratory intercomparisons.

3. 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, one of the licensee's measurements was not acceptable under the test criteria. No comparison was made during this inspection for an air particulate sample. That media will be examined during a subsequent inspection. The types of samples tested and the results of measurements were as follows:

- a. Type of Sample: Liquid Standard (4/75)
(Results in units of uCi/ml)

ACCEPTABLE

<u>Radionuclide</u>	<u>NRC Reference Measurement</u>	<u>Licensee's Measurement</u>
Co-57	3.44 ± 0.02 E-02	2.16 ± 0.01 E-02
Co-60	2.82 ± 0.04 E-03	2.80 ± 0.01 E-03
Cs-134	4.61 ± 0.04 E-03	4.31 ± 0.10 E-03

NOT ACCEPTABLE

<u>Radionuclide</u>	<u>NRC Reference Measurement</u>	<u>Licensee's Measurement</u>
H-3	7.87 ± 0.09 E-03	1.06 ± 0.02 E-02

- b. Type of Sample: Gaseous Waste (4/75)
(Results in units of uCi/ml)

ACCEPTABLE

<u>Radionuclide</u>	<u>NRC Reference Measurement</u>	<u>Licensee's Measurement</u>
Xe-133	3.2 ± 0.2 E-01	3.58 ± 0.02 E-01

NOT ACCEPTABLE

None.

- c. Type of Sample: Charcoal Adsorber (4/75)
(Results in units of uCi/sample)

ACCEPTABLE

<u>Radionuclide</u>	<u>NRC Reference Measurement</u>	<u>Licensee's Measurement</u>
I-131	4.46 ± 0.11 E-02	6.75 ± 0.08 E-02

NOT ACCEPTABLE

None.

4. Comparisons Not Meeting Acceptance Criteria

The licensee's reported result on analysis of a liquid standard sample (prepared by the NRC reference laboratory) for tritium, resulted in an unacceptable comparison with the reported result of the NRC reference laboratory.

The licensee's result on the analysis for tritium is approximately 35% greater than that reported by the NRC reference laboratory. This licensee does not routinely release liquid wastes, engaging instead in a total recycle program with infrequent offsite bulk shipment of low level wastes as necessary. The last liquid waste release to the environment took place in January, 1972.

No errors or procedural differences which would provide possible explanations for the observed difference in analytical results were identified in re-examinations of reported results conducted by both laboratories. The licensee stated that an efficiency check of the liquid scintillation instrumentation utilized for this analysis is performed with each use. A commercially obtained tritium standard and liquid scintillation "cocktail" are utilized.

Arrangements will be made to again provide the licensee with a liquid waste standard sample containing tritium, and this item will be re-examined at a subsequent inspection.

5. Quality Control in Radioanalysis

The licensee utilizes a program of frequent instrument calibration and efficiency checks to control proper instrument operations. This check function is conducted on a daily basis for the Ge(Li) gamma spectrometric instrumentation which is relied upon most heavily for radioanalytical work. An automatic computer function determines the acceptability of energy response in comparison to a preestablished criteria, and identifies unacceptable instrument drift. A ten-peak source is utilized when necessary to re-establish energy response. As noted above, the licensee performs an efficiency check of the liquid scintillation system used for determination of tritium with each use.

The licensee has prepared procedures, schedules and checklists governing sample collection, handling, preparation and counting. Instrument checks and usage are also proceduralized in part. These items were selectively examined by the inspectors. The inspectors noted that the licensee is currently utilizing a system of temporary chemistry memos for procedural control of many activities associated with use of the Ge(Li) gamma spectrometer. Further, certain of the instructions contained in these memos represent changes in practice from the instructions contained in existing formal procedures. The licensee stated that the memo log would be reviewed for incorporation into, or as a basis for modification of, the appropriate procedures manual. This item will be examined further at a subsequent inspection.

The licensee, before January 1, 1976, participated in an informal but extensive comparative analysis program with the

laboratory of the Minnesota Department of Health. This arrangement has been terminated with the retention of a commercial laboratory as contractor for conduct of radiological environmental analyses. The licensee indicated that no plans have been made at present to participate in a comparative program in the future, other than that conducted through the NRC Confirmatory Measurements inspection program.

The inspectors examined licensee documentation establishing auditing functions. Chemical, radiochemical and counting room functions have been included in audits conducted by the Safety Audit Committee and also by internal audits. Selected audit reports were reviewed by the inspectors.

The licensee does not currently perform an internal program of duplicate, replicate or sample standard analysis. A licensee representative stated that the licensee is considering establishing a procedure for duplicate and blank analyses in conjunction with quarterly analysis of particulate filter samples for radiostrontiums.

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.

<u>RESOLUTION</u>	RATIO = LICENSEE VALUE/NRC REFERENCE VALUE		
	<u>Agreement</u>	<u>Possible Agreement A</u>	<u>Possible Agreement B</u>
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.