

NRC FORM 195  
(2-76)

U.S. NUCLEAR REGULATORY COMMISSION

DOCKET NUMBER

50-263

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TO: NRC

FROM: Northern States Pwr Co  
Minneapolis, Mn  
L O Mayer

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DESCRIPTION

ENCLOSURE

Ltt

2p

Verification of annual radioactive effluent  
summary data for 1976 in response to NRC  
ltr dtd 8-26-77.....

3p

PLANT NAME: Monticello 9-22-77 ehf  
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# NSP

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## NORTHERN STATES POWER COMPANY

MINNEAPOLIS, MINNESOTA 55401

September 14, 1977

U S Nuclear Regulatory Commission  
Office of Management Information & Program Control  
Operating Data Branch, 12105 MNBB  
Washington, DC 20555



Gentlemen:

MONTICELLO NUCLEAR GENERATING PLANT  
Docket No. 50-263 License No. DPR-22

### Verification of Annual Radioactive Effluent Summary Data

In a letter dated August 26, 1977 from Mr D K Davis, Acting Chief, Operating Reactors Branch No. 2, to Mr L O Mayer, NSP, we were asked to verify the accuracy of a tabulation of radioactive effluent data for 1976 for our operating nuclear generating plants.

A copy of the summary is attached with all necessary corrections noted. The following corrections were necessary:

- 1) Gross thermal generation was corrected to clearly indicate the numbers presented are rounded to the nearest whole MWHT.
- 2) Net electrical generation was corrected to clearly indicate the numbers presented are rounded to the nearest whole MWHE.
- 3) Item D under Summary of Effluents, Airborne, should be corrected to read, "Total Particulates (half-lives longer than 8 days)."
- 4) Other corrections shown are required to correct transcription errors or to incorporate amendments dated June 3, 1977 to the Monticello Effluent and Waste Disposal Semiannual reports covering the periods January 1 - June 30, 1976 and July 1 - December 31, 1976. These amendments were not used in compiling the draft copy of the data you provided to us. In addition, the Monticello Effluent and Waste Disposal Semiannual Report for the period January 1 - June 30, 1976 was not prepared in the Regulatory Guide 1.21 format and certain information (i.e. tritium and individual particulate isotopes) was not reported. Where required, this data was obtained from plant records to correct the draft copy of the data.

Summary totals on the first page of the data can be different than the sum of isotopes on pages 2 and 3 in all cases except for "Total Noble Gases" and "Total

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NORTHERN STATES POWER COMPANY

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Halogens (including I-131)." As required by Regulatory Guide 1.21, Section C.12.c, measurements of samples resulting in no measured activity are reported as less than the maximum sensitivity of the measurement. In our Effluent and Waste Disposal Semiannual Reports, summary total releases presented in Tables 1A and 2A do not include nuclides which were below minimum detectable activity (MDA). MDA values are included, however, in the individual isotopes reported in Tables 1B, 1C, and 2B. This is done to permit comparisons of releases to applicable regulatory limits to exclude nuclides which were not actually detected during sampling. Noble gas releases are reported as above MDA since they are based on continuous gross activity monitoring with individual isotope releases determined using calculated ratios. There is no regulatory limit on total halogens..

Individual halogen and particulate isotopes on the second and third pages of the data generally include a "less than" symbol. As noted above, this situation arises from reporting measurements of samples in which no measured activity was found as less than MDA. For example, if a quarterly quantity of an isotope released is based on 13 weekly samples, even one sample less than MDA can cause the total quarterly release to be expressed as "less than." Quantities are reported without the "less than" symbol only when all individual measurements are greater than MDA, or if measurements less than MDA do not contribute to the total expressed to three significant decimal places.

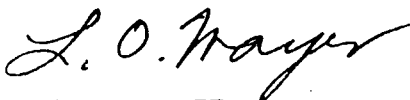
We believe we have taken a conservative approach in conforming to Regulatory Guide 1.21, Section C.12.c. There is a wide variation in interpretation of this section, however, and further guidance from the Commission in this area would be welcome.

If you should find it necessary to clarify the attached data, please contact the following individual at Northern States Power Company:

David Musolf  
612-330-6764

Please contact us if you have any questions or require further information related to this matter.

Yours very truly,



L O Mayer, PE  
Manager of Nuclear Support Services

Attachment

cc: ☒ K Davis  
J G Keppler  
G Charnoff  
MPCA - Attn: J W Ferman

FACILITY: MONTICELLO  
TYPE: BWR  
LOCATION: 23 MI SE ST. CLOUD MN  
COOLING WATER SOURCE: MISSISSIPPI RIVER

DOCKET NO: 50-263  
LICENSED POWER (MWT): 1670.0  
INITIAL CRITICALITY: 12/10/70

OPERATION

GROSS THERMAL GENERATION	12343438.	<del>12343438.0</del>	MWHT
NET ELECTRICAL	3986380.	<del>3986380.0</del>	MWHE
THERMAL CAPACITY FACTOR (DURING COMMERCIAL OPERATION)	84.1		PER CENT

SUMMARY OF EFFLUENTS

AIRBORNE

A)	TOTAL NOBLE GASES	1.14E+04	CURIES
B)	TOTAL I-131	1.21E-01	CURIES
C)	TOTAL HALOGENS (INCLUDING I-131)	<1.02E+00	CURIES
D)	TOTAL PARTICULATES (half lives longer than 8 days)	<del>2.74E-02</del> 5.02E-02	CURIES
E)	TOTAL TRITIUM	<del>5.02E+01</del> 7.69E 01	CURIES

LIQUID

A)	TOTAL MIXED FISSION AND ACTIVATION PRODUCTS	0.0	CURIES
B)	TOTAL TRITIUM	0.0	CURIES
C)	DISOLVED NOBLE GASES	0.0	CURIES
D)	VOLUME OF LIQUID WASTE RELEASED	0.0	LITERS
E)	VOLUME OF DILUTION WATER	0.0	LITERS

SOLID WASTE

A)	VOLUME	2.85E+02	CUBIC METERS
B)	ACTIVITY	<del>2.80E+03</del> 3.79E 03	CURIES
C)	NUMBER OF SHIPMENTS	4.30E+01	

\* IF SUMMARY  
VALUES ARE  
DIFFERENT THAN  
THE SUM OF  
ISOTOPES PLEASE  
EXPLAIN DISCREPANCY.

# AIRBORNE EFFLUENTS (CURIES)

## NOBLE GAS

KR-83M	<del>2.03E-01</del>	2.81E 01
KR-85	<del>2.60E-02</del>	5.65E 01
KR-85M	<del>1.49E-01</del>	2.02E 01
KR-87	<del>9.03E-01</del>	1.34E 02
KR-88	<del>5.11E-01</del>	6.94E 01
KR-89	<del>2.07E-03</del>	2.70E 03
KR-90	<del>7.03E-01</del>	9.15E 01
XE-131M	<del>4.91E-00</del>	5.54E 00
XE-133	<del>6.81E-02</del>	6.97E 02
XE-133M	<del>2.91E-01</del>	2.09E 00
XE-135	<del>1.43E-02</del>	1.95E 02
XE-135M	<del>1.57E-02</del>	2.08E 02
XE-137	<del>2.70E-03</del>	3.53E 03
XE-138	<del>2.50E-03</del>	3.42E 03
XE-139	<del>2.11E-02</del>	2.72E 02

## HALOGENS

I-131	1.21E-01	
I-133	<del>4.21E-01</del>	6.20E-01
I-135	<2.76E-01	

## PARTICULATES

CR-51	<2.63E-03	
MN-54	<del>8.88E-05</del>	<3.92E-04
FE-59	<del>1.32E-04</del>	<1.34E-04
CO-57	<del>3.67E-05</del>	<7.76E-05
CO-58	<del>1.11E-05</del>	<9.60E-05
CO-60	<del>9.61E-04</del>	<1.17E-03
ZN-65	<del>1.78E-03</del>	<1.41E-03
SR-89	<del>8.20E-04</del>	4.40E-03
SR-90	<del>8.70E-03</del>	4.93E-04
ZR-95	<del>1.08E-04</del>	<1.12E-04
NB-95	<del>2.08E-04</del>	<2.34E-04
RU-103	<del>1.34E-04</del>	<5.41E-04
CS-134	<del>1.23E-04</del>	<1.44E-03
CS-136	<del>2.37E-04</del>	<2.02E-03
CS-137	<del>1.12E-03</del>	2.08E-03
CE-141	<del>8.61E-05</del>	<1.34E-03
CE-144	<del>3.41E-04</del>	<6.41E-04
SB-124	<del>1.10E-04</del>	<8.55E-04
HA-140	<del>2.12E-02</del>	3.16E-02
SB-126	<del>7.42E-05</del>	<7.52E-05
ND-147	<del>1.95E-04</del>	<1.98E-04

## TRITIUM

H-3	<del>5.02E-01</del>	7.69E 01
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PLEASE EXPLAIN USE OF LESS THAN NOTATION.  
UNUSUALLY LARGE NUMBER OF ISOTOPES WITH  
THAT NOTATION.

LIQUID EFFLUENTS (CURIES)