Northern States Power Company

Monticello Nuclear Generating Plant
2807 West County Road 75
Monticello, MN 55362

NSP

July 10, 2000

10 CFR Part 50
Section 50.90

U S Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

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

Supplemental Information

Emergency Filtration Train Testing Exceptions and License Amendment Request

Reference 1: NSP letter to NRC, "Emergency Filtration Train Testing Exceptions and License Amendment Request," dated February 29, 2000.

In Reference 1, Northern States Power (NSP) requested approval of continued use of exceptions to the testing requirements of ASME N510-1989, "Testing of Nuclear Air Treatment Systems," for the Emergency Filtration Train (EFT) System. Also attached was a license amendment request which proposed a change to the Technical Specifications, Appendix A of the Operating License. The request was submitted in accordance with the provisions of 10 CFR 50.90.

This letter provides additional information that supplements the Reference 1 amendment request. On June 27, 2000, a telephone conference call was conducted between NSP and NRC representatives to discuss questions and clarifications related to the Reference 1 license amendment request. The questions and NSP response are summarized in Exhibit A attached. The no significant hazards considerations conclusions of Reference 1 are not changed by the additional information.

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This letter contains no new NRC commitments. Please direct any questions on this matter to Douglas A. Neve, Sr. Licensing Engineer, at (612) 295-1353.

Byron D. Day
Plant Manager
Monticello Nuclear Generating Plant

Signed before me on this 10th day of July, 2000 by Byron D. Day, Plant Manager, Monticello Nuclear Generating Plant, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Northern States Power Company.

Samuel I. Shirey
Notary Public - Minnesota
Sherburne County
My Commission Expires January 31, 2005

SAMUEL I. SHIREY
NOTARY PUBLIC - MINNESOTA
My Comm. Exp. Jan. 31, 2005

c: Regional Administrator-III, NRC
NRR Project Manager, NRC
Sr. Resident Inspector, NRC
Minnesota Department of Commerce
J Silberg, Esq.

Attachments: Exhibit A - Supplemental Information, Emergency Filtration Train Testing Exceptions and License Amendment Request, NSP Response to NRC Questions

Exhibit A

Supplemental Information

Emergency Filtration Train Testing Exceptions and License Amendment Request

NSP Response to NRC Questions

The following questions and responses refer to both systems, (1) Standby Gas Treatment System (SGTS), and (2) Control Room Emergency Filtration System (CREFS), unless otherwise noted. NRC questions are shown in normal font; NSP responses are shown in italics:

1) Requested Action 2 of NRC Generic Letter (GL) 99-02 requested licensees to determine the actual system face velocity. However, the letters dated November 30, 1999 and February 29, 2000 did not provide the actual system face velocity. Please refer to or provide docketed information which indicates the actual system face velocities and describes how they are calculated.

   The actual system face velocities can be calculated by dividing the maximum system flow rates specified in the technical specification (TS) (nominal + typically 10% upper value) by the total exposed surface area of the charcoal filter media. Per GL 99-02, if this value is >110% of 40 ft/min, then the TS should be revised to specify that value as the test face velocity. (The guidance on calculation of the residence times in ASME AG-1-1997, Division II, Sections FD and FE, Articles I-1000 or in ANSI N510-1975 can be used to calculate the actual system face velocities).

   CREFS charcoal trays are 24 in X 27.5 in. These values are given in the American Air Filter manual and were verified by measuring a spare tray. These are Type II trays, with each tray consisting of two horizontal charcoal layers and a central air slot. Air is split between the two charcoal layers. Therefore, the exposed surface area per tray is 27.5 X 24 X 2 = 1320 in^2 = 9.16 ft^2. The charcoal bank contains three trays arranged in parallel so the exposed surface area for the bank is 27.5 ft^2. The TS maximum system flow rate is 1000 CFM + 10% = 1100 CFM. Using the methodology above, the actual system face velocity is given by the maximum system flow rate divided by the total exposed surface area: 1100 CFM / 27.5 ft^2 = 40 fpm. Since this value is less than 110% of 40 fpm, the TS does not need to be revised to specify a test face velocity.

   Similarly the Standby Gas Treatment System trays were verified to be 24 in X 26.75 in. The exposed surface area per tray is 26.75 X 24 X 2 = 1284 in^2 = 8.92 ft^2. The SBGT system charcoal banks contain 12 parallel trays. These are also Type II trays,

with each tray consisting of two horizontal charcoal layers and a central air slot. Air is split between the two charcoal layers. Unlike the CREFS system, one of the charcoal trays in the SBGT system contains test cartridges which occupy 25% of the twelfth tray so the exposed surface area is (11 X 8.92) + (0.75 X 8.92) = 104.76 ft^2. The nominal flow rate for the SBGT system is 3500 CFM. The TS maximum system flow rate is 4000 CFM. The actual face velocity for the SBGT system is the maximum flow rate divided by the total exposed surface area: 4000 CFM / 104.76 ft^2 = 38.18 fpm. Since this value is less than 110% of 40 fpm, the TS does not need to be revised to specify a test face velocity.

Also, the November 30, 1999 letter states that the CREFS "total residence time per bed is 0.25 seconds (nominal at 1000 CFM flow rate)." However, the letter only states that the SGTS "total residence time per bed is 0.25 seconds." Does this mean that the 0.25-second residence time for the SGTS is not at the nominal flow rate?

Yes. Residence time is ≥ 0.25 sec at the TS maximum allowable flow rate of 4000 CFM. The calculations below provide illustration.

Using the above calculation, the residence time at 4000 CFM would be:
*1/(38.18 fpm) * ft/12 in * 2 in * 60 sec/min = 0.26 sec*
The residence time for the nominal flow rate of 3500 CFM would be:
*1/(3500 CFM / 104.76 ft^2) * ft/12 in * 2 in * 60 sec/min = 0.30 sec*

2) The November 30, 1999 letter states that the SGTS charcoal bed thickness is "2" per bed." Does this mean that each train has 2 inches of charcoal or does it mean that each train has multiple charcoal beds?

Each train has multiple Type II trays (12/train) arranged in parallel which constitute one two-inch charcoal "bed" or "section" per train.

3) The November 30, 1999 letter proposes to revise TS Bases 3.17.B to state that the dose calculations have been performed for the CREFS assuming 85% SGTS "overall removal" efficiency and 98% CREFS "overall removal" efficiency. Is it correct to assume that the dose calculations assumed 85% efficiency for both elemental and organic iodine for the SGTS and 98% efficiency for both elemental and organic iodine for the CREFS?

Dose calculations assume the same efficiency for elemental and organic iodine for both SGTS (85%) and CREFS (98%).

It is noted that the November 30, 1999 letter did not propose to revise TS Bases 3.17.B. The bases changes are addressed in the License Amendment Request dated February 29, 2000. We do not intend that NRC approve the bases. The amendment request states that "...the bases are revised to reflect..."

4) The November 30, 1999 letter proposes to revise TS Bases 3.17.B for the CREFS to state that the allowable penetration for the laboratory test is based on a conservative adsorber efficiency of 99% and a safety factor of ≥2. Why is an efficiency of 99% used rather than the 98% credited efficiency? Does it account for the in-place bypass? In contrast, the proposed TS Bases 3.7.C for the SGTS states that the allowable penetration for the laboratory test is based on the 90% adsorber efficiency assumed in the off-site dose analysis and a safety factor of ≥2.

Page B-8 of the February 29, 2000 submittal states:

"Our proposed acceptance criteria is (sic) conservatively based on 99% adsorber efficiency, rather than the 98% efficiency assumed in the Control Room dose analyses in the Monticello USAR. In the event that the dose analysis is revised in the future to credit 99% adsorber efficiency, the test criteria will not have to be changed."

Bypasses for the CREFS are accounted for separately from the filter efficiency in the dose calculations.

SGTS adsorber efficiency is assumed to be 90%. The overall SGTS efficiency in the dose calculations is 85% to account for potential bypasses

It is noted that the November 30, 1999 letter did not propose to revise the TS Bases 3.17.B. The bases changes are addressed in the License Amendment Request dated February 29, 2000. We do not intend that NRC approve the bases. The amendment request states that "...the bases are revised to reflect..."

5) In Exhibit A of the November 30, 1999 letter, it was concluded that there was no need to take exception to Section 8.5.1.4 of ASME N510-1989 because it is only required to be performed during acceptance testing and after major modification. In addition, it was concluded that no action was necessary since a pressure drop airflow test was performed during acceptance testing. Some plants who have recently performed this test realized that the system could not maintain the TS flow rate at the pressure drop specified in their TS. The reason for this is that the staff considered 2 inches of water pressure drop for each component in the housing regardless of whether the fans could handle this pressure drop. So if you have a prefilter, upstream HEPA, charcoal and downstream HEPA then the TS value for total pressure drop was 8 inches of

water. TS Section 3.17.2.c.(1) states that the system shall be shown to be operable with a combined filter pressure drop ≤8 inches water. Did the results from the initial pressure drop airflow test support a combined filter pressure drop of 8 inches of water at the nominal TS flow rate minus 10 percent?

During acceptance testing for the EFT system, the "A" train of the EFT system was able to maintain at least nominal TS rated flow –10% with a pressure drop of 10.6 inches of water. The "B" train of the EFT system was able to maintain at least nominal TS rated flow –10% with a pressure drop of 9.4 inches of water. These test results demonstrate that each unit is able to maintain rated flow for a combined filter pressure drop of 8 inches of water.