



Northern States Power Company

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

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

Generic Letter 99-02

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

Response to NRC Generic Letter 99-02

Reference 1. NSP letter to NRC, "Partial Fulfillment of License Conditions Placed on Amendment 101," dated May 25, 1999.

Attached is a response to NRC Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal." Exhibit A is a description of the current Monticello Technical Specification requirements for laboratory testing of charcoal samples for engineered safety feature (ESF) ventilation systems, including the specific test protocol, temperature, relative humidity, charcoal bed thickness, total residence time per bed depth, and penetration. This information was requested by NRC GL 99-02.

The Monticello systems considered ESF ventilation systems are the Standby Gas Treatment and Control Room Emergency Filtration Train (EFT) Systems. The Monticello test requirements specify American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," as the test protocol for laboratory testing the activated charcoal filters in these systems. Sample removal is in accordance with Regulatory Guide (RG) 1.52, "Design, Testing, and Maintenance Criteria for Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," Revision 2, March 1978. For the Standby Gas Treatment System, the requirement is contained in the Bases Section rather than in the specification. Additionally, the acceptance criteria are required to be updated to specify a penetration value based on a safety factor of 2. For the EFT System, no specific reference is made to RG 1.52 for sample removal. Thus, minor changes will be proposed to conform the Monticello Technical Specifications to the guidance of NRC GL 99-02.

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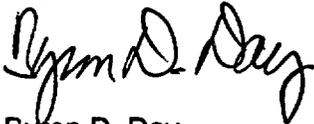
Amendment 101 license conditions and Reference 1 discuss modifications and Technical Specification changes related to EFT System testing in accordance with ASME N510-1989, "Testing of Nuclear Air Treatment Systems." NSP proposes to include the minor changes to the Monticello Technical Specifications resulting from GL 99-02 review in the planned submittal to resolve the remaining ASME N510-1989 issues.

Therefore, NSP establishes the following commitment:

Proposed changes to the Monticello Technical Specifications to conform with the guidance of NRC Generic Letter 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," will be submitted by March 1, 2000, along with the changes to conform EFT System testing to ASME N510-1989.

Please contact Doug Neve at (612)-295-1353 if you require further information related to this letter.

This letter contains no restricted or other defense information.



Byron D. Day
Plant Manager
Monticello Nuclear Generating Plant

c: Regional Administrator-III, NRC
NRR Project Manager, NRC
Sr. Resident Inspector, NRC
State of Minnesota
Attn: Steve Minn
J. Silberg, Esq.

Attachments: Exhibit A – Evaluation and Response to NRC Generic Letter 99-02

EXHIBIT A

Evaluation and Response to NRC Generic Letter 99-02

Background

NRC Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999 (Reference 1), requests licensees to review their technical specifications (TS) with respect to the standards to which activated charcoal filters are tested. Specifically, GL 99-02 requests licensees to determine whether American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear Grade Activated Carbon" (Reference 2) is referenced for laboratory testing, with sample removal per NRC Regulatory Guide (RG) 1.52 (Reference 3). If not, licensees are to either amend their TS to reference the required standards or propose and justify an alternative test protocol. Licensees were also requested to provide several parameters related to the laboratory testing. Per GL 99-02, in all cases the installed charcoal is to be satisfactorily laboratory tested to ASTM D3803-1989 with an acceptance criteria based on a safety factor ≥ 2 , or replaced with new charcoal which has been so tested.

Monticello plant systems affected by GL 99-02 are the Standby Gas Treatment (SBGT) and Control Room Emergency Filtration Train (EFT) Systems. The limiting conditions for operation and surveillance requirements associated with these systems (TS 3/4.7.B and 3/4.17.B, respectively) were reviewed to determine the applicability of the issues discussed in GL 99-02.

Although the charcoal filters at Monticello are currently tested to ASTM D3803-1989, with sample removal per NRC RG 1.52, minor changes to the TS will be proposed under separate cover, as discussed below.

A. Standby Gas Treatment System

System Function

The Standby Gas Treatment System is provided to maintain, whenever secondary containment isolation conditions exist, a small negative pressure to minimize ground level escape of airborne radioactivity. Charcoal adsorbers are provided in this system to remove radioactive halogens. Two separate filter adsorber/fan units are provided. Section 5.3 of the MNGP USAR (Reference 4) provides additional information on the SBGT System.

Requested Data

As requested by GL 99-02, the following data is provided for the Standby Gas Treatment System:

Test Protocol:	ASTM D3803-1989
Test Temperature:	30°C
RH	95%
Charcoal Bed Thickness	2" per bed
Total residence time per bed:	≥ 0.25 seconds
TS Required Penetration	$\leq 6\%$ ($\geq 94\%$ efficiency is specified in TS)

Technical Specification Requirements

Laboratory testing of charcoal adsorbers in the SGBT System is contained in Technical Specification Section 3.7/4.7, Containment Systems (Reference 5).

Specification 3.7.B.2.1, Standby Gas Treatment System Performance Requirements, page 167, states:

- (3) *The results of laboratory carbon sample analysis shall show \geq 94% methyl iodine removal efficiency when tested at 30°C, 95% relative humidity.*

Specification 4.7.B.2, Standby Gas Treatment System Performance Requirement Tests, page 167, states:

At least once per 720 hours of system operation; or once per operating cycle, but not to exceed 18 months, whichever occurs first; or following painting, fire, or chemical release in any ventilation zone communicating with the system while the system is operating that could contaminate the HEPA filters or charcoal absorbers, perform the following:...

- (3) *Remove one carbon test canister from the charcoal adsorber. Subject this sample to a laboratory analysis to verify methyl iodine removal efficiency.*

Specification 4.7.B, Standby Gas Treatment System, Bases, page 188, states:

*...Standby gas treatment system in place testing procedures will be established utilizing applicable sections of ANSI N510-1989 standard as a procedural guideline only.
...Replacement adsorbent should be qualified according to the guidelines of Regulatory Guide 1.52 Revision 2 (March 1978) except testing should be IAW D3803-1989. The charcoal adsorber efficiency test procedures will allow for the removal of a representative sample. The 30°C, 95% relative humidity test per ASTM D 3803-89 is the test method to establish the methyl iodine removal efficiency of adsorbent. The sample will be at least two inches in diameter and a length equal to the thickness of the bed....*

Status of Testing

The test protocol of ASTM D3803-1989 is the current test method per Amendment 94 to the Monticello TS, as proposed and approved in References 6 and 7. The laboratory samples have met the NRC approved TS criterion of \geq 94% efficiency (\leq 6% penetration) compared to the 90% efficiency assumed in the off-site dose analysis. The acceptance criteria implies a safety factor of 1.7 compared to the safety factor of \geq 2 stated in GL 99-02; however, Monticello test results show that the samples meet an acceptance criteria determined using a safety factor of 2.

Conclusions

The SGBT System charcoal filters are currently tested in accordance with the test protocol of ASTM D3803-1989 with sample removal per NRC RG 1.52, in compliance with the NRC approved licensing basis (References 6 and 7). However, the test standard requirements are referenced in the TS bases section rather than in the body of the TS and the acceptance criteria implies a safety factor less than 2. Changes to the TS, including an acceptance criteria based on a safety factor of 2, will be proposed by separate correspondence along with other planned changes, as discussed below.

B. Control Room Emergency Filtration System

System Function

The function of the Control Room Ventilation-Emergency Filtration Train (CRV-EFT) system is to maintain the environment of the Main Control Room, thereby ensuring its habitability during normal and accident conditions. During a radiological accident, the EFT subsystem pressurizes the Control Room with filtered air to minimize the radiological dose rates inside the Control Room. The redundant air filtration units each include two 2-inch charcoal adsorbers to remove gaseous iodine. Section 6.7 of the MNGP USAR (Reference 8) provides additional information on the CRV-EFT system.

Requested Data

As requested by GL 99-02, the following data is provided for the EFT System:

Test Protocol:	ASTM D3803-1989
Test Temperature:	30°C
RH	95%
Charcoal Bed Thickness	2" per bed, 2 beds in series
Total residence time per bed:	0.25 seconds (nominal at 1000 CFM flow rate)
TS Required Penetration	≤ 0.4%

Technical Specification Requirements

Laboratory testing of charcoal adsorbers in the EFT System is contained in Technical Specification Section 3.17/4.17, Control Room Habitability (Reference 9).

Technical Specification Section 3.17.B.2, Control Room Habitability, Control Room Emergency Filtration System Performance Requirements, page 229w states:

(3) The results of laboratory carbon sample analysis shall show ≤ 0.4% methyl iodide penetration when tested at 30°C and 95% relative humidity.

Technical Specification Section 4.17.B.2, Control Room Habitability, Control Room Emergency Filtration System Performance Requirement Test, page 229w states:

The in-place performance testing of HEPA filter banks and charcoal adsorber banks shall be conducted in accordance with Sections 10 and 11 of ASME N510-1989 with exceptions described in Section 6.7 of the USAR. The carbon sample test for methyl iodide shall be conducted in accordance with ASTM D 3803-1989...

(3) Remove one carbon test canister from the charcoal adsorber. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.

Technical Specification Section 4.17.B, Control Room Emergency Filtration System, Bases, page 229z states:

Sample modules will be installed with the same batch characteristics as the system adsorbent and will be withdrawn for the methyl iodide removal efficiency tests. Each module withdrawn will be replaced or blocked off.

Status of Testing

The test protocol of ASTM D3803-1989 is the current test method per Amendment 101 to the Monticello TS, approved by NRC letter to NSP, dated August 28, 1998 (Reference 10). The laboratory samples have met the NRC approved TS criterion of \leq 0.4% penetration, determined using a safety factor of 5, compared to the safety factor of \geq 2 stated in GL 99-02.

Conclusion

The EFT System charcoal filters are currently tested in accordance with the test protocol of ASTM D3803-1989 and RG 1.52; however, the sample removal requirements of RG 1.52 are not specifically referenced. A change to the TS will be proposed by separate correspondence as discussed below.

Future Technical Specification Changes

Planned Future Submittals to NRC

NSP letter to NRC, dated May 25, 1999 (Reference 11), discusses evaluation of Monticello test requirements and EFT System configuration with respect to ASME N510-1989, "Testing of Nuclear Air Treatment Systems" (Reference 12). Reference 11 states that modifications will be made to the system and a submittal will be made to NRC for continued use of any remaining exceptions. The modifications involve installation of sampling and injection manifolds for use during in-place system testing. The next submittal to NRC concerning compliance with ASME N510-1989 will include a TS change to reflect incorporation of the manifolds in the system and other minor changes.

Current Administrative Controls on Filter Test Methodology

As stated above, laboratory testing of charcoal filters for the SBGT and EFT Systems is currently performed in accordance with the test protocol discussed in GL 99-02; however, minor TS changes are required. Laboratory Testing of the charcoal filters is administratively controlled by the Monticello Ventilation Filter Test Program Engineering Work Instruction. The Engineering Work Instruction invokes ASTM D3803-1989 as the test protocol for the filters. Filter design, procurement documentation, and surveillance procedures ensure that sample removal is in accordance with RG 1.52. The surveillance procedures which implement the laboratory test requirements of the TS and TS Bases reference the TS, Monticello Filter Test Program, industry codes and standards, etc. Thus, adequate administrative controls exist to ensure that the charcoal filters will continue to be tested to ASTM D3803-1989 while processing the minor TS change to formally invoke the GL 99-02 test protocol guidance.

Conclusion

Since the TS changes resulting from the assessment of GL 99-02 are relatively minor in nature, NSP proposes to submit those changes when the EFT System submittal is made, since the same specifications will be affected. The TS requirements, TS Bases and administrative controls in place ensure that the charcoal filters will continue to be tested in accordance with ASTM D3803-1989 with sample removal per RG 1.52, until the TS changes are submitted and approved. The TS changes will be submitted by March 1, 2000.

REFERENCES

1. NRC Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999.
2. ASTM Standard D3803-1989, "Standard Test Method for Nuclear Grade Activated Carbon."
3. Regulatory Guide (RG) 1.52, "Design, Testing, and Maintenance Criteria for Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," Revision 2, March 1978.
4. MNGP USAR, Section 5.3, "Secondary Containment System and Reactor Building," Revision 17.
5. MNGP Technical Specification 3/4.7, "Containment Systems," Amendment 105.
6. NSP letter to NRC, "Revision 1 to License Amendment Request Dated June 8, 1994 Standby Gas Treatment and Secondary Containment Technical Specifications," dated April 20, 1995.
7. NRC letter to NSP, "Monticello Nuclear Generating Plant – Issuance of Amendment Re: Standby Gas Treatment Systems (TAC No. M89739)," dated October 2, 1995.
8. MNGP USAR, Section 6.7, "Main Control Room, Emergency Filtration Train Building and Technical Support Center Habitability," Revision 17.
9. MNGP Technical Specification 3/4.17, "Control Room Habitability," Amendment 105.
10. NRC letter to NSP, "Monticello Nuclear Generating Plant – Issuance of Amendment Re: Reactor Coolant Equivalent Radiiodine Concentration and Control Room Habitability," dated August 28, 1998.
11. NSP letter to NRC, "Partial Fulfillment of License Conditions Placed on Amendment 101," dated May 25, 1999.
12. ASME Standard N510-1989, "Testing of Nuclear Air Treatment Systems."