Northern States Power Company

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

NSP

February 29, 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

License Amendment Request dated February 29, 2000

Emergency Filtration Train Testing Exceptions and License Amendment Request

Reference 1: Letter from Craig A. Schibonski, NSP, to NRC Document Control Desk, "Revision Two To License Amendment Request Dated July 26, 1996 Reactor Coolant Equivalent Radioiodine Concentration And Control Room Habitability," dated June 19, 1998.

Reference 2: Letter from Byron Day, NSP, to NRC Document Control Desk, "Partial Fulfillment of License Conditions Placed on Amendment 101," dated May 25, 1999.

Reference 3: Letter from Byron Day, NSP, to NRC Document Control Desk, "Response to NRC Generic Letter 99-02," dated November 30, 1999.

Attached is a request for 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 is a license amendment request which proposes a change to the Technical Specifications, Appendix A of the Operating License. This request is submitted in accordance with the provisions of 10 CFR 50.90.

As an attachment to Reference 1, Northern States Power (NSP) submitted "Exhibit F – EFT System Commitment and ASME N510-1989 Testing Exceptions." In this exhibit, NSP identified ten current requirements for filter testing which were potentially impractical for the existing Monticello Emergency Filtration Train (EFT) system. In response, the NRC issued

Amendment 101 to the Monticello license which approved use of the ten exceptions for 24 months subject to the following Appendix C conditions:

> *Conduct an independent evaluation of the testing methodology and the testing configuration of the EFT [emergency filtration testing] system by HEPA and charcoal filter testing experts. This evaluation shall include review of the exceptions to the ASME N510-1989 testing standards listed in Exhibit F of NSP's June 19, 1998, letter. The evaluation shall be reported to the NRC.* (The implementation date for this condition is *"Within 9 months of the date of issuance of Amendment No. 101."*)
>
> *Initiate appropriate modifications to the EFT system to comply with the ASME N510-1989 testing standard or obtain NRC approval for continued use of the exceptions.* (The implementation date for this condition is *"Within 24 months of the date of issuance of Amendment No. 101."*)

As an attachment to Reference 2, NSP updated the Reference 1 Exhibit F list of exceptions to include the results of a NUCON evaluation and the NSP response to the evaluation, to address each of the ten testing exceptions. Reference 2 completed the requirements of the first license condition above. Exhibit A, attached herein, updates the Reference 1 Exhibit F list of exceptions to include the results of further evaluation and modifications. Exhibit A requests approval to retain two of the exceptions because ASME N510 compliance would require major re-design and modification of the facility. In conjunction with the modifications installed, approval of the exceptions in Exhibit A will constitute satisfaction of the second license condition cited above. Modifications to the EFT System to eliminate the need for some of the test exceptions resulted in a need to revise the related Technical Specifications; thus, Exhibit B proposes changes to Technical Specification 3/4.17.B, "Control Room Emergency Filtration System."

In Reference 3, NSP responded to NRC Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," for the Standby Gas Treatment (SBGT) and the EFT Systems. Reference 3 made 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.*

Thus, we are also proposing changes to Technical Specifications 3/4.7.B, "Standby Gas Treatment System" and 3/4.17.B, "Control Room Emergency Filtration System," consistent with the guidance of NRC GL 99-02, to satisfy the commitment above.

NSP has identified an additional change related to the EFT System. The EFT System is currently relied upon to protect Control Room operators in the event of a fuel handling accident, as well as reactor accidents. However, EFT System operability during fuel handling evolutions is not now required by our Technical Specifications. Therefore, we are proposing changes to Technical Specification 3/4.17.B to include operability requirements during operations which could result in a fuel handling accident.

NSP requests approval for continued use of two exceptions to ASME N510-1989 as discussed in Exhibit A. We also request authorization for a change to Appendix A of the Monticello Operating License Technical Specifications as shown on the attachments labeled Exhibit B, C, and D. Exhibit B contains a description of the proposed Technical Specification change, the reasons for requesting the change, a Safety Evaluation, a Determination of No Significant Hazards Consideration, and an Environmental Assessment. Exhibit C contains the current Technical Specification pages marked up with the proposed changes. Exhibit D contains revised Monticello Technical Specification pages.

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.

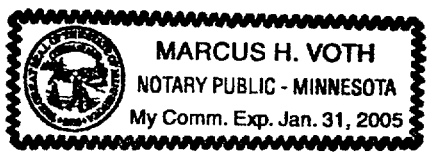
Byron D. Day
Plant Manager
Monticello Nuclear Generating Plant

c: Regional Administrator-III, NRC
NRR Project Manager, NRC
Resident Inspector, NRC
State of Minnesota
Attn: Steve Minn

Attachments:
Exhibit A - EFT System Commitment and ASME N510-1989 Testing Exceptions (Annotated version of Exhibit F as it originally appeared in References 1 and 2)
Exhibit B – Evaluation of Proposed Change to the Monticello Technical Specifications
Exhibit C – Current Monticello Technical Specification Pages Marked Up With Proposed Change
Exhibit D – Revised Monticello Technical Specification Pages

On this 29TH day of FEBRUARY, 2000 before me a notary public in and for said County, personally appeared Byron D. Day, Plant Manager, Monticello Nuclear Generating Plant, a Minnesota corporation, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Northern States Power Company, that he knows the contents thereof, and that to the best of his knowledge, information, and belief the statements made in it are true and that it is not interposed for delay.

Marcus H Voth
Marcus H. Voth
Notary Public - Minnesota
Wright County
My Commission Expires January 31, 2005



License Amendment Request dated February 29, 2000
EFT System Commitment and ASME N510-1989 Testing Exceptions

(Annotated version of Exhibit F as it appeared in References 1 and 2)

Commitment (From Reference 1)

Within 9 months of the date of the approval of this amendment, NSP will conduct an independent evaluation of the testing methodology and system testing configuration of the Emergency Filtration (EFT) system by HEPA and charcoal filter testing experts. All of the exceptions to the testing standards listed below will be evaluated. The results of this review will be reported to the staff.

Reference 2 updated the list of test exceptions and stated that further testing was necessary to determine whether several of the exceptions could be eliminated or would be required to remain.

In February, 2000, the system was modified and further testing was performed to allow use of test manifolds to facilitate testing in accordance with several sections of ASME N510-1989.

Injection/sampling manifolds were obtained which provide for testing between adsorber banks. Manifolds and injection points were satisfactorily qualified by performing ASME N510-1989 Section 9, "Air-Aerosol Mixing Uniformity Test", which verifies uniform mixing of challenge gas in the filter airstream.

Testing was performed per Sections 10 (HEPA Filter Bank In-Place Test) and 11 (Adsorber Bank In-Place Leak Test) for informational purposes only. Results showed each individual HEPA filter and each individual charcoal filter bank had <1% penetration, with <0.05% penetration across both HEPA filters and across the charcoal adsorber section (two banks).

The final results of the review are discussed in the "conclusion" sections below for each exception. Only two exceptions are requested for continued use (items 1 and 2 below).

The plain text below indicates the discussion as it originally appeared in Reference 1. The bold text indicates the discussion added in Reference 2. The bold text under the conclusion for each section and the summary indicates discussion added by this letter.

ASME N510-1989 Testing Exceptions

1. *Section 5.5.1 of ASME N510-1989*

   Section 5.5.1 of ASME N510-1989 provides guidance for visual inspection of the air treatment system.

   NSP Exception

   NSP performs a visual inspection of applicable items from Section 5.5.1. NSP performs a visual inspection by procedure, but many of the standard's inspections items are not applicable to the Monticello EFT system. Examples of

items that are not applicable to Monticello include: 1) dovetail type access gaskets with a seating surface suitable for a knife edge seal, and 2) shaft seals.

NUCON Evaluation and NSP response

NUCON agrees that many of the checklist items found in N510 do not apply to the EFT system since it is a serpentine type of design not addressed by ASME N509. In addressing the specific examples of incompatibility between the Monticello EFT installation and N510 requirements, NUCON recommends that replacement gaskets should have a dovetail design.

Conclusion

NSP requests approval for continued use of an exception to Section 5.5.1 of ASME N510-1989 based on system design not accommodating all of the inspection items. Current inspections conform to the intent of the ASTM N510-1989 requirements to the extent that the design features are installed. As the system is maintained in the future, NSP will install dovetail gaskets as discussed above. NSP will continue to inspect the applicable items from Section 5.5.1 of ASME N510-1989.

2. *Section 6.2.2 and Table 1 of ASME N510-1989*

Section 6.2.2 and Table 1 of ASME N510-1989 state that a housing leak test shall be performed every 10 years.

NSP Exception

This test is not performed at Monticello. The EFT system at Monticello was built to be tested to ANSI/ASME N510-1980 which does not require these tests to be performed periodically. No provisions were provided to accommodate this test. The entire EFT housing is contained within the protective envelope supplied by the system, and any leakage into the housing would be filtered air. Periodic performance of a test that verifies the ability to maintain the control room envelope at a positive pressure is an adequate demonstration of system leak integrity.

NUCON Evaluation and NSP response

NUCON agrees that the housing leak test would be very difficult to perform, given the EFT system design. NUCON states an acceptable alternative would be to perform a smoke test on the housing upon completion of periodic in-place filter testing to detect any inleakage. NSP has incorporated the smoke test into EFT in-place filter testing procedures.

Conclusion

NSP requests approval for continued use of an exception to Section 6.2.2 of ASME N510-1989. System design does not accommodate the periodic

housing leak test. System design minimizes the effects of housing inleakage. The smoke test has been incorporated in the test program as an equivalent alternative to the housing leak test.

3. *Section 7.1 of ASME N510-1989*

Section 7.1 of ASME N510-1989 recommends a mounting frame pressure leak test to verify the absence of leaks through seal welds of the HEPA filter and adsorber frames, and between the frames and housings be performed.

NSP Exception

This test is not performed at Monticello. Leaks of this nature are detected by the visual inspection test or the in-place filter test, and credit is taken for these tests as allowed by the standard.

NUCON Evaluation and NSP response

NUCON states that per N510-1989 the mounting frame pressure leak test is an optional test which would normally only be done during acceptance testing. NSP agrees that the test is optional, noting that Table 1 of N510-1989 states "It is left up to the owner to determine whether a mounting frame leak test is warranted based upon the visual examination."

Exception #3 will be eliminated since NSP does comply with Section 7.1 of N510-1989.

Conclusion

No action is necessary since NSP complies with Section 7.1 of ASME N510-1989. The mounting frame pressure leak test was performed during acceptance testing.

4. *Section 8.5.1.4 of ASME N510-1989*

Section 8.5.1.4 of ASME N510-1989 requires that a housing component pressure drop airflow test be performed which requires that maximum pressure drops across each of the components be simulated. The unit is run at this maximum pressure drop across the system, and adequate airflow is ensured.

NSP Exception

This test is not performed at Monticello. The EFT system was designed to be tested to the ANSI/ASME N510-1980 standard which does not require that this test be performed periodically. The system at Monticello contains a low flow trip. If airflow is too low through the system due to debris loading of the filters, the running train will automatically trip, and the standby train will start.

NUCON Evaluation and NSP response

NUCON states that per N510-1989 the pressure drop airflow test is required only during acceptance testing and after major modification. NSP agrees that periodic pressure drop airflow tests are not required by the standard.

Exception #4 will be eliminated since NSP does comply with Section 8.5.1.4 of N510-1989.

Conclusion

No action is necessary since NSP complies with Section 8.5.1.4 of ASME N510-1989. The pressure drop airflow test was performed during acceptance testing.

5. *Section 8.5.2.2 of ASME N510-1989*

Section 8.5.2.2 of ASME N510-1989 requires a periodic airflow distribution test through the adsorber banks.

NSP Exception

This test is not performed at Monticello. Monticello's EFT system was designed to be tested to the ANSI/ASME N510-1980 standard which does not require this test be performed periodically. No provisions were made in the design of the Monticello EFT to perform this test periodically.

NUCON Evaluation and NSP response

NUCON states that per N510-1989 the airflow distribution test is required only during acceptance testing and after major modification. NSP agrees that periodic airflow distribution tests are not required by the standard.

Exception #5 will be eliminated since NSP does comply with Section 8.5.2.2 of N510-1989.

Conclusion

No action is necessary since NSP complies with Section 8.5.2.2 of ASME N510-1989. The airflow distribution test was performed during acceptance testing.

6. *Section 10.3 of ASME N510-1989*

Section 10.3 of ASME N510-1989 states that sample points for DOP sampling shall be downstream of a fan, or downstream sample manifolds shall be qualified per ASME N509.

NSP Exception

At Monticello, the downstream sampling is performed upstream of the fan using a single injection point. No shaft seals are installed on the system's fans, therefore sampling downstream of the fan would obtain a diluted air sample.

Section 10.3 of the ANSI/ASME N510-1980 standard, which the EFT System was originally designed to, does not require the use of a sampling manifold. No provisions were made in the design of the Monticello EFT for sampling manifolds.

NUCON Evaluation and NSP response

NUCON agrees that testing downstream of a known dilution source (i.e., fan shaft leakage) is not acceptable. NUCON recommends use of temporary sample manifolds for downstream sampling (upstream of the fans), which would be installed for testing and removed for operation. NSP agrees with NUCON's recommendation and will obtain and qualify manifolds for in-place testing.

Exception #6 will be eliminated following incorporation of manifolds into the testing program.

Conclusion

No action is necessary. The system has been modified to allow use of temporary manifolds for downstream sampling and NSP complies with Section 10.3 of ASME N510-1989.

7. *Section 10.5.8 of ASME N510-1989*

Section 10.5.8 of ASME N510-1989 states that upstream and downstream DOP concentrations are repeated until readings within +/- 5 % of respective previous readings are obtained. The final set of readings is then used to calculate penetration.

NSP Exception

At Monticello, the readings are taken until the concentrations are within +/- 10%, and the highest penetration reading is conservatively used with a minimum of three readings taken. Because of the injection point location for the Monticello EFT system, it is difficult to consistently achieve +/- 5% between readings.

NUCON Evaluation and NSP response

NUCON recommends that the injection port be relocated or that injection manifolds be evaluated to provide better mixing of the challenge agent. NSP agrees with NUCON's recommendation and will incorporate either qualified new injection ports or injection manifolds into the testing program. This exception will then be reevaluated and eliminated if the +/- 5 % criterion can be met.

Conclusion

No action is necessary. The system has been modified to allow use of injection manifolds which tests have shown to provide adequate mixing,

meeting the +/- 5 % criterion. Thus, NSP complies with Section 10.5.8 of ASME N510-1989.

8. *Section 11.3 of ASME N510-1989*

Section 11.3 of ASME N510-1989 states that sample points for halide challenge gas shall be downstream of a fan or downstream sample manifolds shall be qualified per ASME N509.

NSP Exception

See Item 6 above.

NUCON Evaluation and NSP response

See Item 6 above. Exception #8 will be eliminated following incorporation of manifolds into the testing program.

Conclusion

No action is necessary. The system has been modified to allow use of temporary manifolds for downstream sampling and NSP complies with Section 11.3 of ASME N510-1989.

9. Section 11.4 of ASME N510-1989

Section 11.4 of ASME N510-1989 states that R-11 is the preferred test gas with R-112 or R-112A as acceptable alternatives.

NSP Exception

NSP reserves the ability to use alternate test gases that are found to be acceptable alternatives by the industry. Monticello currently employs R-11 as the test gas; however, environmental concerns regarding the use of such halide gases may result in use of these gases not being feasible in the future.

NUCON Evaluation and NSP response

NUCON and NSP agreed that this exception is reasonable.

Conclusion

NSP no longer requests exception to Section 11.4 of ASME N510-1989. NSP currently meets and will continue to comply with Section 11.4 of ASME N510-1989. Therefore, no action is necessary since NSP complies and does not require an exception from this section.

10. *Section 11.5.8 of ASME N510-1989*

Section 11.5.8 of ASME N510-1989 states that when a housing contains more than one bank of adsorbers in series, the halide gas test shall be repeated for each bank.

NSP Exception

At Monticello, the two adsorber banks are tested as a single unit. This requirement was not present in ANSI/ASME N510-1980, which the EFT System was designed to, and a qualified injection manifold between the two banks was not provided.

NUCON Evaluation and NSP response

NUCON recommends use of temporary injection/sample manifolds to test the adsorber banks individually, which would be installed for testing and removed for operation. NSP agrees with NUCON's recommendation and will obtain and qualify manifolds for in-place testing.

Exception #10 will be eliminated following incorporation of manifolds into the testing program.

Conclusion

No action is necessary. The system has been modified to allow use of temporary injection/sample manifolds to test the adsorber banks individually and NSP complies with Section 11.5.8 of ASME N510-1989.

Summary

In addition to the commitment cited above to review the test exceptions, Amendment 101 to the Monticello license approved use of the ten exceptions for 24 months subject to the following Appendix C condition:

> ***Initiate appropriate modifications to the EFT system to comply with the ASME N510-1989 testing standard or obtain NRC approval for continued use of the exceptions.***

Monticello has eliminated all but two of the exceptions to the test requirements of ASME N510-1989. NSP requests approval for continued use of two exceptions to ASME N510-1989 as follows. Approval of the exceptions will constitute satisfaction of the second license condition cited above.

1. **NSP requests approval for continued use of an exception to Section 5.5.1 of ASME N510-1989 based on system design not accommodating all of the inspection items.**
2. **NSP requests approval for continued use of an exception to Section 6.2.2 of ASME N510-1989 based on system design not accommodating the housing leak test and incorporation of the smoke test as an alternative.**

References

1. NSP letter to NRC, "Revision Two To License Amendment Request Dated July 26, 1996 Reactor Coolant Equivalent Radioiodine Concentration And Control Room Habitability," dated June 19, 1998.
2. NSP letter to NRC, "Partial Fulfillment of License Conditions Placed on Amendment 101," dated May 25, 1999.

Evaluation of Proposed Change to the Monticello Technical Specifications

License Amendment Request Dated February 29, 2000
Emergency Filtration Train Testing Exceptions and License Amendment Request

Pursuant to 10 CFR Part 50, Section 50.90, Northern States Power Company hereby proposes the following change to Appendix A to Facility Operating License DPR-22, "Technical Specifications" for Monticello Nuclear Generating Plant.

Background

This license amendment request (LAR) proposes changes to the Technical Specifications (TS) for the Standby Gas Treatment (SBGT) and Emergency Filtration Train (EFT) Systems, resulting from various activities which affect operation and testing of the systems.

As an attachment to Reference 1, NSP submitted "Exhibit F – EFT System Commitment and ASME N510-1989 Testing Exceptions." In this exhibit NSP identified ten current requirements in ASME N510-1989 (Reference 2) for filter testing which it found potentially impractical for the existing Monticello Emergency Filtration Testing (EFT) system. In response, the NRC issued Amendment 101 to the Monticello license which approved use of the ten exceptions for 24 months subject to the following Appendix C conditions (Reference 3):

> *Conduct an independent evaluation of the testing methodology and the testing configuration of the EFT [emergency filtration testing] system by HEPA and charcoal filter testing experts. This evaluation shall include review of the exceptions to the ASME N510-1989 testing standards listed in Exhibit F of NSP's June 19, 1998, letter. The evaluation shall be reported to the NRC.* (The implementation date for this condition is *"Within 9 months of the date of issuance of Amendment No. 101."*)
>
> *Initiate appropriate modifications to the EFT system to comply with the ASME N510-1989 testing standard or obtain NRC approval for continued use of the exceptions.* (The implementation date for this condition is *"Within 24 months of the date of issuance of Amendment No. 101."*)

NSP engaged NUCON to perform the independent evaluation. As an attachment to Reference 4, NSP updated the Reference 1, Exhibit F list of exceptions include the NUCON evaluation and the NSP response, to address each of the ten testing exceptions to complete the requirements of the first license condition cited above. Exhibit A attached to this LAR updates the Reference 1, Exhibit F list of exceptions to include the results of further evaluation and modifications. Exhibit A requests approval for continued use of two of the exceptions because N510 compliance would require major re-design and modification of the existing Monticello facility, and equivalent testing and inspection is performed. Modifications to the EFT System to eliminate other test exceptions resulted in a need to revise the Technical Specifications; thus, the proposed amendment changes Technical Specification 3/4.17.B, "Control Room Emergency Filtration System."

In Reference 5, NSP responded to NRC Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," (Reference 6) for the Standby Gas Treatment (SBGT) and the EFT Systems. Reference 5 stated that the minor changes to the Monticello Technical Specifications resulting from GL 99-02 review would be included in the submittal to resolve the remaining ASME N510-1989 issues. Thus, the proposed amendment changes Technical Specifications 3/4.7.B, "Standby Gas Treatment System" and 3/4.17.B, "Control Room Emergency Filtration System" to be consistent with the guidance of NRC GL 99-02.

The EFT System is currently relied upon to protect Control Room operators in the event of a fuel handling accident, as well as reactor accidents. Therefore, the proposed amendment changes Technical Specification 3/4.17.B to include operability requirements during operations which could result in a fuel handling accident.

A. Standby Gas Treatment System

System Function

The SBGT System is provided to maintain, whenever secondary containment isolation conditions exist, a small negative pressure in the Reactor Building 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 7) provides additional information on the SBGT System.

Proposed Change

The following change to Appendix A, of the Monticello Technical Specifications is proposed:

1. Technical Specification 3.7.B.2.1, Standby Gas Treatment System Performance Requirements, page 167, is proposed to be changed to read as follows (additions are in bold; deletions are struck out):

   ~~a1~~. Periodic Requirements

   (3) The results of laboratory carbon sample analysis shall show ~~≥ 94%~~ ≤ **5%** *methyl ~~iodine removal efficiency~~* ***iodide penetration*** *when tested* ***in accordance with ASTM D3803-1989*** *at 30°C, 95% relative humidity.*

2. Technical Specification 4.7.B.2, Standby Gas Treatment System Performance Requirement Tests, page 167, is proposed to be changed to read as follows (additions are in bold; deletions are struck out):

   2. Performance Requirement Tests

   a. 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~~ **adsorbers**, perform the following:*

(1) In-place DOP test the HEPA filter banks.

(2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer.

*(3) Remove one carbon test ~~canister~~ **sample** from the charcoal adsorber **in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978**. Subject this sample to a laboratory analysis to verify methyl ~~iodine~~ **iodide** removal efficiency.*

3. Technical Specification Bases Section 3.7.B, Standby Gas Treatment System Performance Requirements, page 182.

   The bases are revised to reflect that the laboratory test penetration acceptance criteria is based on the adsorber efficiency assumed in the off-site dose analysis and a safety factor ≥2, consistent with NRC GL 99-02 (Reference 6).

Reason for Change

Changes are proposed to Technical Specifications 3/4.7.B.2, Standby Gas Treatment System to conform with the guidance of NRC GL 99-02. Editorial changes are also proposed to correct the indexing from 3.7.B.2.1 to 3.7.B.2.a, "absorber" to "adsorber," and "iodine' to "iodide." The discussion below reflects the use of the corrected indexing.

Safety Evaluation

NRC GL 99-02 (Reference 6) discusses laboratory testing of activated charcoal adsorbers in ventilation systems. In response to NRC GL 99-02, NSP stated in Reference 5 that the adsorbers in the SBGT system are currently tested to the requirements discussed in the GL. However, the requirements to test in accordance with ASTM D3803-1989 (Reference 8) and to obtain samples in accordance with Regulatory Guide 1.52 (Reference 9) are contained in the technical specification bases rather than in the specifications. The proposed changes to Specifications 3.7.B.2.a.(3) and 4.7.B.2.a.(3) provide the appropriate references to the ASTM standard and the Regulatory Guide in the technical specifications in addition to the bases. The proposed change in nomenclature from "canister" to "sample" reflects that Regulatory Guide 1.52 allows a sample to be taken directly from the tray, a practice which may be used at Monticello in the future for this system.

NRC GL 99-02 (Reference 6) also specified that the acceptance criteria for the laboratory test is to be a penetration value based on the adsorber efficiency assumed in the off site dose analysis of 90% and a safety factor ≥2. The efficiency currently specified as the acceptance criteria was based on a safety factor <2. The 90% adsorber efficiency assumed in the offsite dose analysis and a safety factor of 2 result in an acceptance criteria of ≤5% penetration. Thus, Specification 4.7.B.2.a.(3) is

revised to specify an acceptance criteria of ≤5% penetration rather than ≥94% efficiency. The bases for Specification 3.7.B are revised to reflect the methodology.

The changes proposed above conform to the technical requirements of NRC GL 99-02.

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 10) provides additional information on the CRV-EFT system.

Proposed Change

The following change to Appendix A of the Monticello Technical Specifications is proposed:

1. Technical Specification Section 3.17. Control Room Habitability, Specification 3.17.B, Control Room Emergency Filtration System, pages 229v, 229w, 229ww, and 229x are proposed to be changed to read as follows (additions are in bold; deletions are struck out):

   a. Specification 3.17.B.1:

      1. Except as specified in 3.17.B.1.a~~, or 3.17.B.1.b~~, ***through d*** *below, two control room emergency filtration system filter trains shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F,* ***or during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel.***

         a. When one control room emergency filtration system filter train is made or found to be inoperable, for any reason,...

         c. With one control room emergency filtration system filter train inoperable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel, restore the inoperable train to operable status within 7 days or immediately after the 7 days initiate and maintain the operable emergency filtration system filter train in the pressurization mode or immediately suspend these activities.

         d. With both control room emergency filtration system filter trains inoperable during movement of irradiated fuel

assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel, immediately suspend these activities.

(It should be noted that the above change results in the addition of new page 229vv.)

b. Specification 3.17.B.2:

2. Performance Requirements

a. Acceptance Criteria – Periodic Requirements

(1) The results of the in-place DOP tests at 1000 cfm (± 10%) shall show ≤1% DOP penetration on each individual HEPA filter and shall show ≤0.05% DOP penetration on the combined HEPA filters.

(2) The results of in-place halogenated hydrocarbon tests at 1000 cfm (± 10%) shall show ***≤1% penetration on each individual charcoal adsorber and shall show*** *≤0.05% penetration on the combined charcoal banks.*

(3) The results of laboratory carbon sample analysis shall show ~~≤0.4~~ ***≤0.5%*** *methyl iodide penetration when tested at 30° C and 95% relative humidity.*

b. Acceptance Criteria – System Operation Requirements

The results of laboratory carbon sample analysis shall show ~~≤0.4~~ ***≤0.5%*** *methyl iodide penetration when tested at 30° C and 95% relative humidity.*

c. Specification 3.17.B.3:

3. Post Maintenance requirements

a. After any maintenance or testing that could affect the HEPA filter or HEPA filter mounting frame leak tight integrity, the results of the in-place DOP tests at 1000 cfm (+ 10%) shall show ≤1% DOP penetration on each individual HEPA filter and shall show ***≤0.05%*** *~~≤0.05%~~ DOP penetration on the combined HEPA filters.*

b. After any maintenance or testing that could affect the charcoal adsorber leak tight integrity, the results of in-place halogenated hydrocarbon tests at 1000 cfm (±10%) shall show ***≤1% penetration on each individual charcoal adsorber and shall***

show *≤0.05% penetration on the combined charcoal adsorber banks.*

2. Technical Specification Section 4.17. Control Room Habitability, Specification 4.17.B, Control Room Emergency Filtration System, pages 229w and 229ww are proposed to be changed to read as follows (additions are in bold; deletions are struck out):

   Specification 4.17.B.2:

   2. *Performance Requirement Test*

      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. ***Sample removal shall be in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978****.*

      a. *At least once per operating cycle, but not to exceed 18 months; or following painting, fire, or chemical release while the system is operating that could contaminate the HEPA filters or charcoal adsorbers, perform the following:*

         (1) In-place DOP test the HEPA filter banks.

         (2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer.

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

         (4) Initiate from the control room 1000 cfm (± 10%) flow through both trains of the emergency filtration treatment system.

      b. *At least once per 720 hours of system operation, remove one carbon test ~~canister~~* ***sample*** *from* ***each*** *~~the~~ charcoal adsorber* ***bank****. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.*

3. Technical Specification Bases Section 3.17.A, Control Room Ventilation System, and Bases Section 3.17.B, Control Room Emergency Filtration System, page 229y, and Bases Section 4.17.B, Control Room Emergency Filtration System, page 229z:

a. The bases for Section 3.17.A are revised to correct "affect" to "effect," a grammatical error.

b. The bases for Section 3.17.B are revised to reflect that the EFT system is required during fuel handling operations.

   The bases are revised to reflect that the laboratory test penetration acceptance criteria is based on a conservative adsorber efficiency compared to the Control Room dose analysis and a safety factor ≥2, consistent with the guidance of NRC GL 99-02 (Reference 6).

   The bases are revised to clarify that the stated efficiencies for the SBGT and EFT Systems are overall efficiencies.

   The bases are also revised to correct "level" to "levels."

c. The bases for Section 4.17.B are revised to correct "though" to "through."

Reason for Change

Changes to Technical Specifications 3/4.17.B are proposed for the following reasons:

1. Changes are proposed to include operability requirements for the EFT System during fuel handling operations.
2. Changes are proposed to conform with the technical guidance of NRC GL 99-02. An editorial change is also included to clarify that a charcoal adsorber sample is withdrawn for each adsorber section for laboratory testing.
3. Modifications have been made to the EFT system to promote better mixing of the challenge gas and to allow testing each adsorber bank separately for in place testing. These modifications resulted in the need to include penetration acceptance criteria for each adsorber bank, as well as a combined penetration acceptance criterion. Reference to exceptions from Sections 10 and 11 of ASTM N510 can also be eliminated.
4. An editorial change is included to correct the penetration acceptance criteria from "<0.05%" to "≤0.05%." An editorial change is also included to remove an unnecessary comma.

Safety Evaluation

1. The Monticello USAR, Section 14.7 (Reference 11) discusses fuel handling accidents. Concerning dose to Control Room operators during a fuel handling accident, Reference 11 states:

   Control Room doses for the refueling accident are bounded by the Main Steam Line break accident.

   The main steam line break (MSLB) accident assumes that the EFT System is operating; therefore, the EFT System must operate during a fuel handling accident in order to consider the MSLB as a bounding event. Thus, the EFT System can be

considered as required to mitigate the effects of an accident in that the post accident dose to operators is minimized. Therefore, it is appropriate to include limiting conditions for operation (LCOs) for the EFT System during fuel handling operations in Technical Specification 3.17.B. Specification 3.17.B.1 is revised to require both trains of the EFT System to be operable during fuel handling operations. Specifications 3.17.B.1.c and 3.17.B.1.d are added to include action when one or both trains are inoperable. The LCOs proposed above are consistent with those in NUREG 1433 Standard Technical Specifications for boiling water reactors (Reference 12)

NRC GL 99-02 (Reference 6) discusses laboratory testing of activated charcoal adsorbers in ventilation systems. In response to NRC GL 99-02, NSP stated in Reference 5 that the adsorbers in the EFT System are currently tested in accordance with the requirements of Reference 6. Minor changes are required to specify sample removal in accordance with Regulatory Guide 1.52 (Reference 9). The changes proposed above provide reference to the Regulatory Guide in Specification 4.17.B.2. Specifications 4.17.B.2.a.(3) and 4.17.B.2.b are also revised to clarify that one test sample is removed from each bank for laboratory testing. The proposed change in nomenclature from "canister" to "sample" reflects that Regulatory Guide 1.52 allows a sample to be taken directly from the tray, a practice which is desired to be used to take the final sample when replacing charcoal.

NRC GL 99-02 (Reference 6) also specified that the acceptance criteria for the laboratory test is to be a penetration value based on the adsorber efficiency assumed in the off site dose analysis and a safety factor ≥ 2. The penetration acceptance criteria currently contained in Specifications 3.17.B.2.a.(3) and 3.17.B.2.b is based on a safety factor of 5. Our proposed acceptance criteria is 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. A safety factor of 2 is consistent with NRC GL 99-02. The resulting acceptance criteria is $\leq 0.5\%$ penetration. The bases for Specification 3.17.B are revised to reflect the methodology.

Therefore, the changes proposed above conform to the technical requirements of NRC GL 99-02.

2. System testing was performed in February, 2000 to determine the feasibility of modifying the EFT System to allow for more complete testing in accordance with ASTM N510-1989, as discussed in Exhibit A. The testing proved the feasibility of using temporary test manifolds to promote better mixing and sampling of the test gas. The results of the testing eliminated exceptions from Sections 10 and 11 of ASTM N510-1989. An acceptance criteria of $\leq 1\%$ was added to Specifications 3.17.B.a.(2) and 3.17.B.3.a for the individual charcoal adsorber sections. The added criteria is consistent with that provided for the EFT System HEPA filters and

provides margin to the 0.05% limit for the combined charcoal banks. (e.g., both adsorber sections leaking at their limit of 1%, would result in combined penetration of 0.01%.)

No Significant Hazards Consideration:

The proposed amendment has been evaluated to determine whether it constitutes a significant hazards consideration as required by 10 CFR Part 50, section 50.91 using standards provided in section 50.92. This analysis is provided below:

The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

During an accident, the Control Room Emergency Filtration System provides filtered air to pressurize the Control Room to minimize the activity, and therefore the radiological dose, inside the Control Room. The SBGT System maintains a small negative pressure in the Reactor Building to minimize ground level escape of airborne radioactivity. Technical Specification operability and surveillance requirements are established in order to ensure that the SBGT and EFT Systems will perform their safety functions during an accident. The proposed amendment documents the test method for laboratory testing of charcoal adsorbers in both systems, implements adequate test acceptance criteria, and improves the methodology of in-place testing of charcoal filters in the EFT System. The additional operability requirements for the EFT System ensure that the systems will be available when required. The surveillances adequately show that the system is operable and capable of performing its safety function. Dose to the public and the Control Room operators are not affected by the proposed change.

Since neither system is an accident initiator, the probability of an accident is not increased.

The proposed Technical Specification change does not introduce new equipment operating modes, nor does the proposed change alter existing system relationships. The proposed amendment does not introduce new failure modes.

Therefore, the proposed amendment will not significantly increase the probability or the consequences of an accident previously evaluated.

The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

The proposed Technical Specification change does not introduce new equipment operating modes, nor does the proposed change alter existing system relationships. The proposed amendment does not introduce new failure modes. The proposed surveillance requirements are consistent with industry and regulatory guidance and show that the system is capable of performing its safety function. The added operability requirements for the EFT System ensure that the system will be available when required.

Therefore, the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed amendment will not involve a significant reduction in the margin of safety.

The proposed amendment is consistent with current industry and regulatory standards for testing filters. The proposed amendment maintains margins of safety. Off-site and Control Room dose assessments are not affected by the proposed amendment, since the ability of the SBGT and EFT Systems to perform their safety function is shown by the proposed surveillance requirements. The proposed change to the surveillances provides assurance that the system will perform at the filter efficiency used in the evaluation of the radiological consequences of the postulated events. Therefore, the proposed amendment will not involve a significant reduction in the margin of safety.

Environmental Assessment

Northern States Power has evaluated the proposed change and determined that:

1. The change does not involve a significant hazards consideration.
2. The change does not involve a significant change in the type or significant increase in the amounts of any effluent that may be released offsite, or
3. The change does not involve a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR Part 51, Section 51.22(b), and an environmental assessment of the proposed change is not required.

References

1. NSP letter to NRC, "Revision Two To License Amendment Request Dated July 26, 1996 Reactor Coolant Equivalent Radioiodine Concentration And Control Room Habitability," dated June 19, 1998.
2. ASME Standard N510-1989, "Testing of Nuclear Air Treatment Systems."
3. NRC letter to NSP, "Monticello Nuclear Generating Plant – Issuance of Amendment Re: Reactor Coolant Equivalent Radioiodine Concentration and Control Room Habitability," dated August 28, 1998.
4. NSP letter to NRC, "Partial Fulfillment of License Conditions Placed on Amendment 101," dated May 25, 1999.
5. NSP letter to NRC, "Response to NRC Generic Letter 99-02," dated November 30, 1999.
6. NRC Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999.
7. MNGP USAR, Section 5.3, "Secondary Containment System and Reactor Building," Revision 17.
8. ASTM Standard D3803-1989, "Standard Test Method for Nuclear Grade Activated Carbon."
9. 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.
10. MNGP USAR, Section 6.7, "Plant Engineered Safeguards, Main Control Room, Emergency Filtration Train Building and Technical Support Center Habitability," Revision 17.
11. MNGP USAR, Section 14.7, "Accident Evaluation Methodology," Revision 17.
12. NUREG 1433, "Standard Technical Specifications General Electric Plants, BWR/4," Revision 1.

Exhibit C

Current Monticello Technical Specification Pages Marked Up
With Proposed Change

License Amendment Request Dated
February 29, 2000

Exhibit C consists of current Technical Specification pages marked up with the proposed change. The pages included in this exhibit are as listed below:

Pages

167
182
229v
229w
229ww
229x
229y
229z

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. If both standby gas treatment system circuits are not operable, within 36 hours the reactor shall be placed in a condition for which the standby gas treatment system is not required in accordance with Specification 3.7.C.2.(a) through (d).	
2. Performance Requirements	2. Performance Requirement Tests
a.1. Periodic Requirements	a. 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~~ adsorbers, perform the following:
(1) The results of the in-place DOP tests at 3500 cfm (±10%) on HEPA filters shall show ≤1% DOP penetration.	(1) In-place DOP test the HEPA filter banks.
(2) The results of in-place halogenated hydrocarbon tests at 3500 cfm (±10%) on charcoal banks shall show ≤1% penetration.	(2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer
(3) The results of laboratory carbon sample analysis shall show ≥94% methyl ~~iodine removal efficiency~~ when tested at 30°C, 95% relative humidity.	(3) Remove one carbon test ~~canister~~ sample from the charcoal adsorber. Subject this sample to a laboratory analysis to verify methyl ~~iodine~~ iodide removal efficiency.

≤ 5% penetration

iodide

in accordance with ASTM D3803-1989

in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978

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 ≥2.

Bases 3.7 (Continued):

While only a small amount of particulates are released from the primary containment as a result of the loss of coolant accident, high-efficiency particulate filters before and after the charcoal filters are specified to minimize potential particulate release to the environment and to prevent clogging of the charcoal adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment. The in-place test results should indicate a system leak tightness of less than 1% bypass leakage for the charcoal adsorbers using halogenated hydrocarbon and a HEPA filter efficiency of at least 99% removal of DOP particulates. Laboratory carbon sample test results indicate a radioactive methyl iodide removal efficiency for expected accident conditions. Operation of the standby gas treatment circuits significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers. If the performance requirements are met as specified, the calculated doses would be less than the guidelines stated in 10 CFR 100 for the accidents analyzed.

D. Primary Containment Isolation Valves

Double isolation valves are provided on lines penetrating the primary containment. Closure of one of the valves in each line would be sufficient to maintain the integrity of the Primary Containment. Automatic initiation is required to minimize the potential leakage paths from the containment in the event of a loss-of-coolant accident. Details of the Primary Containment isolation valves are discussed in Section 5.2 of the USAR. A listing of all Primary Containment automatic isolation valves including maximum operating time is given in USAR Table 5.2-3b.

E. Combustible Gas Control System

The function of the Combustible Gas Control System (CGCS) is to maintain oxygen concentrations in the post-accident containment atmosphere below combustible concentrations. Oxygen may be generated in the hours following a loss of coolant accident from radiolysis of reactor coolant.

The Technical Specifications limit oxygen concentrations during operation to less than four percent by volume during operation. The maintenance of an inert atmosphere during operation precludes the build-up of a combustible mixture due to a fuel metal-water reaction. The other potential mechanism for generation of combustible mixtures is radiolysis of coolant which has been found to be small.

A special report is required to be submitted to the Commission to outline CGCS equipment failures and corrective actions to be taken if inoperability of one train exceeds thirty days. In addition, if both trains are inoperable for more than 30 days, the plant is required to shutdown until repairs can be made.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.a With both control room ventilation trains inoperable, restore at least one train to operable status within 24 hours.	
3.b If 3.a is not met, then be in hot shutdown within the next 12 hours and in cold shutdown within 24 hours following the 12 hours.	
3.c If 3.a is not met during movement of irradiated fuel assemblies in the secondary containment, core alterations, or activities having the potential for draining the reactor vessel then immediately suspend these activities.	
B. Control Room Emergency Filtration System	B. Control Room Emergency Filtration System
1. Except as specified in 3.17.B.1.a, ~~or 3.17.B.1.b~~ below, two control room emergency filtration system filter trains shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.	1. At least once per month, initiate from the control room 1000 cfm (±10%) flow through both trains of the emergency filtration treatment system. The system shall operate for at least 10 hours with the heaters operable.
a. When one control room emergency filtration system filter train is made or found to be inoperable for any reason, restore the inoperable train to operable status within seven days or be in hot shutdown within the next 12 hours following the seven days and either reduce the reactor coolant temperature to below 212°F or initiate and maintain the operable emergency filtration system filter train in the pressurization mode within the following 24 hours.	

, or during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel.

3.0 LIMITING CONDITIONS FOR OPERATION

b. When both filter trains of the control room emergency filtration system are inoperable, restore at least one train to operable status within 24 hours or be in hot shutdown within the next 12 hours following the 24 hours and reduce the reactor coolant water temperature to below 212°F within the following 24 hours.

Insert 1 attached

2. Performance Requirements

a. Acceptance Criteria - Periodic Requirements

(1) The results of the in-place DOP tests at 1000 cfm (±10%) shall show ≤1% DOP penetration on each individual HEPA filter and shall show ≤0.05% DOP penetration on the combined HEPA filters.

(2) The results of in-place halogenated hydrocarbon tests at 1000 cfm (±10%) shall show ≤0.05% penetration on the combined charcoal banks.

≤ 0.5 %

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

≤1% penetration on each individual charcoal adsorber and shall show

4.0 SURVEILLANCE REQUIREMENTS

Sample removal shall be in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978.

2. Performance Requirement Test

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.

a. At least once per operating cycle, but not to exceed 18 months; or following painting, fire, or chemical release while the system is operating that could contaminate the HEPA filters or charcoal adsorbers, perform the following:

(1) In-place DOP test the HEPA filter banks.

(2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer.

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

(4) Initiate from the control room 1000 cfm (±10%) flow through both trains of the emergency filtration treatment system.

INSERT 1 for Technical Specification page 229w:

c. With one control room emergency filtration system filter train inoperable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel, restore the inoperable train to operable status within 7 days or immediately after the 7 days initiate and maintain the operable emergency filtration system filter train in the pressurization mode or immediately suspend these activities.

d. With both control room emergency filtration system filter trains inoperable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel, immediately suspend these activities.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. Acceptance Criteria - System Operation Requirements The results of laboratory carbon sample analysis shall show ~~≤0.4%~~ methyl iodide penetration when tested at 30°C and 95% relative humidity.	b. At least once per 720 hours of system operation, remove one carbon test ~~canister~~ from the charcoal adsorber. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
c. The system shall be shown to be operable with:	c. At least once per operating cycle, but not to exceed 18 months, the following conditions shall be demonstrated for each emergency filtration system train:
(1) Combined filter pressure drop ≤8 inches water.	(1) Pressure drop across the combined filters of each train shall be measured at 1000 cfm (±10%) flow rate.
(2) Inlet heater power output 5kw ± 10%.	(2) Operability of inlet heater at nominal rated power shall be verified.
(3) Automatic initiation upon receipt of a high radiation signal.	(3) Verify that on a simulated high radiation signal, the train switches to the pressurization mode of operation and the control room is maintained at a positive pressure with respect to adjacent areas at the design flow rate of 1000 cfm (±10%).
3. Post Maintenance Requirements	3. Post Maintenance Testing
a. After any maintenance or testing that could affect the HEPA filter or HEPA filter mounting frame leak tight integrity, the results of the in-place DOP tests at 1000 cfm (±10%) shall show ≤1% DOP penetration on each individual HEPA filter and shall show ≤0.05% DOP penetration on the combined HEPA filters.	a. After any maintenance or testing that could affect the leak tight integrity of the HEPA filters, perform in-place DOP tests on the HEPA filters.
b. After any maintenance or testing that could affect the charcoal adsorber leak tight integrity, the results of in-place halogenated hydrocarbon tests at 1000 cfm (±10%) shall show ≤0.05% penetration on the combined charcoal adsorber banks.	b. After any maintenance or testing that could affect the leak tight integrity of the charcoal adsorber banks, perform halogenated hydrocarbon tests on the charcoal adsorbers.

≤1% penetration on each individual charcoal adsorber and shall show

Bases 3.17:

A. Control Room Ventilation System

The Control Room Ventilation System provides air conditioning and heating as required to maintain a suitable environment in the main control room and portions of the first and second floors of the Emergency Filtration Train (EFT) building. The system is designed to maintain a nominal temperature of 78°F dry bulb in the main control room in the summer and a nominal temperature of 72°F in the winter. During normal operation, the CRV system recirculates the air in the control room envelope as needed. During a high radiation event, the Control Room Ventilation System continues to operate, and the Control Room Emergency Filtration Train system will start automatically to pressurize the control room protective envelope. The Emergency Filtration Train system can also be started manually.

All toxic substances which are stored onsite or stored/shipped within a 5 mile radius of the plant have been analyzed for their ~~affect~~ effect on the control room operators. It has been concluded that the operators will have at least two minutes to don protective breathing apparatus before incapacitation limits are exceeded. For toxic substance which are transported on highways within 5 miles of the plant, it has been determined that the probability of a release from the plant due to incapacitation of the operators caused by a spill is sufficiently low that this scenario may be excluded. Protection for toxic chemicals is provided through operator training.

B. Control Room Emergency Filtration System

The Control Room Emergency Filtration System assures that the control room operators will be adequately protected against the effects of radioactive leakage which may by-pass secondary containment following a loss of coolant accident, ~~or radioactive releases from a~~ steam line break accident or fuel handling accident. The system is designed to slightly pressurize the control room on a radiation signal in the ventilation air. Two completely redundant trains are provided.

Each train has a filter unit consisting of a prefilter, HEPA filters, and charcoal adsorbers. The HEPA filters remove particulates from the Control Room pressurizing air and prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to remove any radioiodines from the pressurizing air. The verification of performance parameters combined with the qualification testing conducted on new filters and adsorbers provide a high level of assurance that the Emergency Filtration System will perform as predicted in reducing doses to plant personnel below those levels stated in Criterion 19 of Appendix A to 10 CFR 50.

Dose calculations have been performed for the Control Room Emergency Filtration System which show that, assuming 85% standby gas treatment system ~~adsorption and filtration~~ overall removal efficiency and 98% control room emergency filtration system ~~adsorption and filtration~~ overall removal efficiency and radioiodine plateout, whole body and organ doses remain within NRC guidelines.

The allowable penetration for the laboratory test is based on a conservative adsorber efficiency of 99% and a safety factor ≥2.

Bases 4.17:

A. Control Room Ventilation System

Control room air temperature is checked each shift to ensure that the continuous duty rating for the instrumentation and equipment cooled by this system is not exceeded.

Demonstrating automatic isolation of the control room using simulated accident signals assures control room isolation under accident conditions.

B. Control Room Emergency Filtration System

Air flow through the filters and charcoal adsorbers each month assures operability of the system.

The frequency of tests and sample analysis is necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. The charcoal adsorber tray is installed which can accommodate a sufficient number of representative adsorber sample modules for estimating the amount of penetration the system adsorbs ~~though~~ its life. 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. In-place testing procedures will be established utilizing applicable sections of ASME N510-1989 as described in Section 6.7 of the USAR. If test results are unacceptable, all adsorbent in the train is replaced. Any HEPA filters found defective are replaced.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than or equal to 8 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

Demonstrating automatic control room pressurization using simulated accident signals assures control room pressurization with respect to adjacent areas under accident conditions.

Exhibit D

Revised Monticello Technical Specification Pages

License Amendment Request Dated
February 29, 2000

Exhibit D consists of revised Technical Specification pages that incorporate the proposed change. The pages included in this exhibit are as listed below:

Pages
167
182
229v
229vv
229w
229ww
229x
229y
229z

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. If both standby gas treatment system circuits are not operable, within 36 hours the reactor shall be placed in a condition for which the standby gas treatment system is not required in accordance with Specification 3.7.C.2.(a) through (d).	
2. Performance Requirements	2. Performance Requirement Tests
a. Periodic Requirements	a. 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 adsorbers, perform the following:
(1) The results of the in-place DOP tests at 3500 cfm (±10%) on HEPA filters shall show ≤1% DOP penetration.	(1) In-place DOP test the HEPA filter banks.
(2) The results of in-place halogenated hydrocarbon tests at 3500 cfm (±10%) on charcoal banks shall show ≤1% penetration.	(2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer.
(3) The results of laboratory carbon sample analysis shall show ≤5% methyl iodide penetration when tested in accordance with ASTM D3803-1989 at 30°C, 95% relative humidity.	(3) Remove one carbon test sample from the charcoal adsorber in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.

Bases 3.7 (Continued):

While only a small amount of particulates are released from the primary containment as a result of the loss of coolant accident, high-efficiency particulate filters before and after the charcoal filters are specified to minimize potential particulate release to the environment and to prevent clogging of the charcoal adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment. The in-place test results should indicate a system leak tightness of less than 1% bypass leakage for the charcoal adsorbers using halogenated hydrocarbon and a HEPA filter efficiency of at least 99% removal of DOP particulates. Laboratory carbon sample test results indicate a radioactive methyl iodide removal efficiency for expected accident conditions. 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. Operation of the standby gas treatment circuits significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers. If the performance requirements are met as specified, the calculated doses would be less than the guidelines stated in 10 CFR 100 for the accidents analyzed.

D. Primary Containment Isolation Valves

Double isolation valves are provided on lines penetrating the primary containment. Closure of one of the valves in each line would be sufficient to maintain the integrity of the Primary Containment. Automatic initiation is required to minimize the potential leakage paths from the containment in the event of a loss-of-coolant accident. Details of the Primary Containment isolation valves are discussed in Section 5.2 of the USAR. A listing of all Primary Containment automatic isolation valves including maximum operating time is given in USAR Table 5.2-3b.

E. Combustible Gas Control System

The function of the Combustible Gas Control System (CGCS) is to maintain oxygen concentrations in the post-accident containment atmosphere below combustible concentrations. Oxygen may be generated in the hours following a loss of coolant accident from radiolysis of reactor coolant.

The Technical Specifications limit oxygen concentrations during operation to less than four percent by volume during operation. The maintenance of an inert atmosphere during operation precludes the build-up of a combustible mixture due to a fuel metal-water reaction. The other potential mechanism for generation of combustible mixtures is radiolysis of coolant which has been found to be small.

A special report is required to be submitted to the Commission to outline CGCS equipment failures and corrective actions to be taken if inoperability of one train exceeds thirty days. In addition, if both trains are inoperable for more than 30 days, the plant is required to shutdown until repairs can be made.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.a With both control room ventilation trains inoperable, restore at least one train to operable status within 24 hours.	
3.b If 3.a is not met, then be in hot shutdown within the next 12 hours and in cold shutdown within 24 hours following the 12 hours.	
3.c If 3.a is not met during movement of irradiated fuel assemblies in the secondary containment, core alterations, or activities having the potential for draining the reactor vessel then immediately suspend these activities.	
B. Control Room Emergency Filtration System	B. Control Room Emergency Filtration System
1. Except as specified in 3.17.B.1.a through d below, two control room emergency filtration system filter trains shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F, or during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel.	1. At least once per month, initiate from the control room 1000 cfm (±10%) flow through both trains of the emergency filtration treatment system. The system shall operate for at least 10 hours with the heaters operable.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
a. When one control room emergency filtration system filter train is made or found to be inoperable for any reason, restore the inoperable train to operable status within seven days or be in hot shutdown within the next 12 hours following the seven days and either reduce the reactor coolant temperature to below 212°F or initiate and maintain the operable emergency filtration system filter train in the pressurization mode within the following 24 hours.	
b. When both filter trains of the control room emergency filtration system are inoperable, restore at least one train to operable status within 24 hours or be in hot shutdown within the next 12 hours following the 24 hours and reduce the reactor coolant water temperature to below 212°F within the following 24 hours.	
c. With one control room ventilation train inoperable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel, restore the inoperable train to operable status within 7 days or immediately after the 7 days initiate and maintain the operable emergency filtration system filter train in the pressurization mode or immediately suspend these activities.	
d. With both control room ventilation trains inoperable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel, immediately suspend these activities.	

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
2. Performance Requirements a. Acceptance Criteria - Periodic Requirements (1) The results of the in-place DOP tests at 1000 cfm (±10%) shall show ≤1% DOP penetration on each individual HEPA filter and shall show ≤0.05% DOP penetration on the combined HEPA filters. (2) The results of in-place halogenated hydrocarbon tests at 1000 cfm (±10%) shall show ≤1% penetration on each individual charcoal adsorber and shall show ≤0.05% penetration on the combined charcoal banks. (3) The results of laboratory carbon sample analysis shall show ≤0.5% methyl iodide penetration when tested at 30°C and 95% relative humidity.	2. Performance Requirement Test 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. The carbon sample test for methyl iodide shall be conducted in accordance with ASTM D 3803-1989. Sample removal shall be in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978. a. At least once per operating cycle, but not to exceed 18 months; or following painting, fire, or chemical release while the system is operating that could contaminate the HEPA filters or charcoal adsorbers, perform the following: (1) In-place DOP test the HEPA filter banks. (2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer. (3) Remove one carbon test sample from each charcoal adsorber bank. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency. (4) Initiate from the control room 1000 cfm (±10%) flow through both trains of the emergency filtration treatment system.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. Acceptance Criteria - System Operation Requirements The results of laboratory carbon sample analysis shall show $\leq$0.5% methyl iodide penetration when tested at 30°C and 95% relative humidity.	b. At least once per 720 hours of system operation, remove one carbon test sample from each charcoal adsorber bank. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
c. The system shall be shown to be operable with: (1) Combined filter pressure drop ≤8 inches water. (2) Inlet heater power output 5kw±10%. (3) Automatic initiation upon receipt of a high radiation signal.	c. At least once per operating cycle, but not to exceed 18 months, the following conditions shall be demonstrated for each emergency filtration system train: (1) Pressure drop across the combined filters of each train shall be measured at 1000 cfm (±10%) flow rate. (2) Operability of inlet heater at nominal rated power shall be verified. (3) Verify that on a simulated high radiation signal, the train switches to the pressurization mode of operation and the control room is maintained at a positive pressure with respect to adjacent areas at the design flow rate of 1000 cfm (±10%).
3. Post Maintenance Requirements a. After any maintenance or testing that could affect the HEPA filter or HEPA filter mounting frame leak tight integrity, the results of the in-place DOP tests at 1000 cfm (±10%) shall show ≤1% DOP penetration on each individual HEPA filter and shall show ≤0.05% DOP penetration on the combined HEPA filters. b. After any maintenance or testing that could affect the charcoal adsorber leak tight integrity, the results of in-place halogenated hydrocarbon tests at 1000 cfm (±10%) shall show ≤1% penetration on each individual charcoal adsorber and shall show ≤0.05% penetration on the combined charcoal adsorber banks.	3. Post Maintenance Testing a. After any maintenance or testing that could affect the leak tight integrity of the HEPA filters, perform in-place DOP tests on the HEPA filters. b. After any maintenance or testing that could affect the leak tight integrity of the charcoal adsorber banks, perform halogenated hydrocarbon tests on the charcoal adsorbers.

Bases 3.17:

A. Control Room Ventilation System

The Control Room Ventilation System provides air conditioning and heating as required to maintain a suitable environment in the main control room and portions of the first and second floors of the Emergency Filtration Train (EFT) building. The system is designed to maintain a nominal temperature of 78°F dry bulb in the main control room in the summer and a nominal temperature of 72°F in the winter. During normal operation, the CRV system recirculates the air in the control room envelope as needed. During a high radiation event, the Control Room Ventilation System continues to operate, and the Control Room Emergency Filtration Train system will start automatically to pressurize the control room protective envelope. The Emergency Filtration Train system can also be started manually.

All toxic substances which are stored onsite or stored/shipped within a 5 mile radius of the plant have been analyzed for their effect on the control room operators. It has been concluded that the operators will have at least two minutes to don protective breathing apparatus before incapacitation limits are exceeded. For toxic substance which are transported on highways within 5 miles of the plant, it has been determined that the probability of a release from the plant due to incapacitation of the operators caused by a spill is sufficiently low that this scenario may be excluded. Protection for toxic chemicals is provided through operator training.

B. Control Room Emergency Filtration System

The Control Room Emergency Filtration System assures that the control room operators will be adequately protected against the effects of radioactive leakage which may by-pass secondary containment following a loss of coolant accident, steam line break accident or fuel handling accident. The system is designed to slightly pressurize the control room on a radiation signal in the ventilation air. Two completely redundant trains are provided.

Each train has a filter unit consisting of a prefilter, HEPA filters, and charcoal adsorbers. The HEPA filters remove particulates from the Control Room pressurizing air and prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to remove any radioiodines from the pressurizing air. The verification of performance parameters combined with the qualification testing conducted on new filters and adsorbers provide a high level of assurance that the Emergency Filtration System will perform as predicted in reducing doses to plant personnel below those levels stated in Criterion 19 of Appendix A to 10 CFR 50. The allowable penetration for the laboratory test is based on a conservative adsorber efficiency of 99% and a safety factor of ≥ 2.

Dose calculations have been performed for the Control Room Emergency Filtration System which show that, assuming 85% standby gas treatment system overall removal efficiency and 98% control room emergency filtration system overall removal efficiency and radioiodine plateout, whole body and organ doses remain within NRC guidelines.

Bases 4.17:

A. Control Room Ventilation System

Control room air temperature is checked each shift to ensure that the continuous duty rating for the instrumentation and equipment cooled by this system is not exceeded.

Demonstrating automatic isolation of the control room using simulated accident signals assures control room isolation under accident conditions.

B. Control Room Emergency Filtration System

Air flow through the filters and charcoal adsorbers each month assures operability of the system.

The frequency of tests and sample analysis is necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. The charcoal adsorber tray is installed which can accommodate a sufficient number of representative adsorber sample modules for estimating the amount of penetration the system adsorbs through its life. 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. In-place testing procedures will be established utilizing applicable sections of ASME N510-1989 as described in Section 6.7 of the USAR. If test results are unacceptable, all adsorbent in the train is replaced. Any HEPA filters found defective are replaced.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than or equal to 8 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

Demonstrating automatic control room pressurization using simulated accident signals assures control room pressurization with respect to adjacent areas under accident conditions.