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September 6, 2000

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station
Docket Nos. 50-369, 370
Response To Request For Additional Information
Proposed Amendment To Technical Specification
5.5.11- Ventilation Filter Testing Program
TAC Nos. MA7316 and MA7317

On November 23, 1999, McGuire Nuclear Station (MNS) submitted a license amendment request (LAR) for McGuire Nuclear Station Facility Operating Licenses (FOL) NPF-9 and NPF-17, Appendix A, Technical Specifications. The subject LAR proposed a revision to Technical Specification 5.5.11 - Ventilation Filter Testing Program (VFTP). The specific change was requested in response to Generic Letter (GL) 99-02 - "Laboratory Testing Of Nuclear-Grade Activated Charcoal". During a telephone conference on June 22, 2000, the NRC requested that MNS provide additional information to support NRC review of the subject LAR.

The additional information requested by the NRC and Duke Energy Corporation's (DEC) response is provided in Attachment A to this letter. Based on information provided in Attachment A, the LAR submitted on November 23, 1999 requires revision. The revised submittal pages are shown in Attachment B. They should be substituted for the corresponding pages in the original LAR. By incorporation, both Attachments A and B form part of the LAR associated with TAC No.s MA7316 and MA7317.

Any questions related to this matter should be directed to Julius Bryant, McGuire Regulatory Compliance at (704) 875-4162.

H.B. Barron, Vice President
McGuire Nuclear Station

Attachments

A081

cc: L.A. Reyes, Regional Administrator
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Scott Shaeffer
Senior Resident Inspector
McGuire Nuclear Station

H. B. Barron, being duly sworn, states that he is Site Vice President of McGuire Nuclear Station Duke Energy Corporation; that he is authorized on the part of Duke Energy Corporation to sign and file with the U.S. Nuclear Regulatory Commission this revision to the McGuire Nuclear Station Facility Operating License No.s NPF-9 and NPF-17; and, that all statements and matters set forth therein are true and correct to the best of his knowledge.

H. B. Barron, Vice President
McGuire Nuclear Station
Duke Energy Corporation

Subscribed and sworn to before me this 6th day of September 2000.

Deborah S. Rome
Notary Public
(Deborah S. Rome)

My Commission Expires:

December 19, 2004

bxc: R. B. Travis (MGO5SE)
R. T. Fisher (MGO5SE)
H. E. Vanpelt(EC12ZD)
G. D. Gilbert(CN01RC)
L. E. Nicholson (ONO3RC)
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ATTACHMENT A

ADDITIONAL INFORMATION

NRC Request for Additional Information Related to TAC No.s MA7316 and MA7317

Item #1

For each Unit, indicate how the actual system face velocities are calculated for the following systems: Annulus Ventilation (VE), Control Area Ventilation (VC), Auxiliary Building Filtered Exhaust (VA), Containment Purge and Exhaust (VP), and Fuel Building Ventilation (VF).

Response To Item #1:

The face velocities for each system are shown in the Table 1. Unless noted otherwise, the information is the same for both McGuire Unit 1 and 2. The face velocities were calculated by dividing the maximum filter flow by the applicable filter face area.

TABLE 1

System	Filter Design Flow (cfm)	Filter Maximum Flow(2) (cfm)	Filter Face Area (square feet)	Face Velocity (fpm)
VC	2000	2200	49.5	44.44(3)
VE	8000	8800	295	29.83
VA Unit 1	45700	50270	1429	35.18
VA Unit 2	40500	44550	1429	31.18
VF	35000	38500	973	39.57
VP	10500	11550	352	32.81
VP(1)	14000	15400	352	43.75

(1) Each of the two VP filters has a design flow of 10,500 cfm when both fans are running simultaneously (21,000 cfm total). However, the applicable Technical Specification surveillance testing is performed with only one VP fan running. With only one VP fan running, the flow is 14,000 cfm. Consequently, the conservative VP face velocity data is shown for this actual testing flow.

(2) As per Technical Specification 5.5.11, maximum flow for the filters is 110% of the design flow.

(3) Per GL 99-02, if the face velocity value is >110% of 40 fpm (i.e. 44 ft/min), then the applicable Technical Specification should be revised to specify that value as the test face velocity. Note that McGuire calculation MCC-1211.00-00-0066 - "Verification of Carbon Adsorber Residence Times" uses guidance and assumptions related to testing of charcoal filters contained in NRC Regulatory Guide 1.52,

(footnote 3 continued...)

Revision 2 and referenced standard ANSI N510-1975. That calculation indicates that the VC system filters will have acceptable residence times with face velocities of up to 50 ft/min. Given this and the small amount that the VC system face velocity exceeds 44 ft/min, this license amendment request (LAR) does not specify the VC system face velocity. LAR Attachment 3 Page 2 has been revised to incorporate the above discussion. This revised page is included in Attachment B to this letter. It should be substituted for the corresponding page in the original LAR submittal.

Item #2

For charcoal testing performed after August 2, 1999, each licensee is to indicate when the next laboratory testing of filter charcoal is scheduled to be performed and whether it will be performed in accordance with ASTM D3803-1989. Please provide this information in docketed form.

Response To Item #2:

After August 2, 1999, the first laboratory testing of charcoal from the VE, VC, VA, VP, and VF systems were performed on, or are scheduled for, the dates shown in the Table 2 using standard ASTM D3803-1989. All results to date have been acceptable.

TABLE 2

SYSTEM	UNIT 1	UNIT 2
"A" Train VC(1)	1/17/00	-
"B" Train VC(1)	Scheduled for 3/16/01(2)	-
"A" Train VE	Scheduled for 11/7/00(3)	7/7/00
"B" Train VE	Scheduled for 11/23/00(4)	Scheduled for 12/13/00(4)
VA	3/16/00	4/19/00
VF	Scheduled for 4/7/01(5)	6/21/00
"A" Train VP	1/13/00	6/21/00
"B" Train VP	1/13/00	6/21/00

(1) VC is shared system for Unit 1 & 2.

(2) Last laboratory testing of "B" Train VC charcoal was performed 9/23/99 using standard ASTM D3803-1989. Results were acceptable.

(3) Last laboratory testing of Unit 1 "A" Train VE charcoal was performed 5/17/99 using standard ASTM D3803-1989. Results were acceptable.

(4) Last laboratory testing of Unit 1 "B" Train VE charcoal was performed 6/2/99 using standard ASTM D3803-1989. Last laboratory testing of Unit 2 "B" Train VE charcoal was performed 6/22/99 using standard ASTM D3803-1989. Both Unit's results were acceptable.

(footnotes continued…)

(5) Last laboratory testing of Unit 1 VF charcoal was performed 10/15/99 using standard ASTM D3803-1989. Results were acceptable.

Item #3

The NRC requested that McGuire provide the filter efficiencies assumed in the plant dose analyses for each of the systems associated with the subject LAR. In addition, it was requested that McGuire provide the basis for these assumed efficiencies.

Response To Item #3:

The requested information is provided in Table 3. It is applicable to both Units 1 & 2.

Note that the original LAR proposed to revise Technical Specification page 5.5-14 to indicate a post-amendment methyl iodide penetration for both the VP and VF systems of < 9%. Given erroneous assumed VP and VF filter efficiencies used to develop the original LAR limit of < 9%, DEC is revising the original LAR to indicate a post-amendment methyl iodide penetration for both the VP and VF systems of < 4%. This revised penetration limit is based on the correct assumed VP and VF filter efficiencies, a safety factor as low as 2 allowed by GL 99-02, and the in-place testing penetration and system bypass requirement of < 1% for the VP and VF systems shown in Technical Specification 5.5.11, Section b.

Marked up and revised Technical Specification page 5.5-14 shown in Attachments 1 and 2 of the LAR have been revised accordingly. In addition, LAR Attachment 3 Pages 2 and 4 have been revised to reflect this change. These revised LAR pages are included in Attachment B of this letter. They should be substituted for the corresponding pages in the original LAR submittal.

Additional Item

The original LAR submittal indicated that the proposed revisions would support future changes in filter efficiencies assumed in the McGuire analyses of offsite and control room operator doses following design basis accidents. These references to future changes have been removed from the LAR to reflect that the proposed LAR TS changes support the existing filter efficiencies assumed in the McGuire dose analyses. Accordingly, revised LAR Attachment 3 Page 4 and Attachment 4 are included in Attachment B of this letter. They should be substituted for the corresponding pages in the original LAR submittal.

TABLE 3

	Methyl Iodide Penetration Before Amendment Post-Amendment	In Place Flow Test Penetration & System Bypass Before Amendment Post-Amendment	Elemental / Organic Safety Factor Before Amendment Post-Amendment	Dose Analyses Elemental & Organic Iodine Filter Efficiency	Basis For Dose Analyses Filter Efficiency
Annulus Ventilation (VE)	< 4% < 4%	< 1% < 1%	1 / 4 1 / 4	95% Elemental / 80% Organic	MNS UFSAR Table 15-33 and SER Dated 7/15/91 for Amendments 122 & 104 (TACs 80129 & 80130) **
Control Area Ventilation (VC)	< 0.95% < 0.95%	< 0.05% < 0.05%	1 / 5 1 / 5	99% Elemental / 95% Organic	MNS UFSAR Table 15-34 and SER Dated 7/15/91 for Amendments 122 & 104 (TACs 80129 & 80130) **
Aux Building Filtered Exhaust (VA)	< 10% < 4%	< 1% < 1%	2.72 / 4.54 6 / 10	70% Elemental / 50% Organic	Duke Calculation MCC-1227-00-00.48, LOCA Dose From UFSAR Table 15-12, and SER Dated 9/12/90 for Amendments 113 & 95 (TACs 73113 & 73114) **
Containment Purge Exhaust (VP)	< 1% < 4%*	< 1% < 1%	7.5 / 7.5 3 / 3	85% Elemental / 85% Organic ***	Duke Calculation MCC-1227-00-00.48
Fuel Building Ventilation (VF)	< 1% < 4%*	< 1% < 1%	5 / 15 2 / 6	90% Elemental / 70% Organic	Dropped Assembly Dose From UFSAR Table 15-12 and MNS SER Supplement 4 Table 15.4-5 **

* The methyl iodide penetration proposed in the original submittal is < 9%. However, McGuire is revising the amendment such that, for the VP and VF systems, the proposed methyl iodide penetration would be < 4%.

** McGuire agreed to use the efficiencies stated in the referenced SER and incorporate them into the dose analyses.

*** The organic contribution to the source term is negligible (0.25%). Therefore, based upon the decontamination factor used, calculation MCC-1227-00-00.48 assumed a filter efficiency of 85% elemental and 85% organic.

ATTACHMENT B

REVISED SUBMITTAL PAGES

5.5 Programs and Manuals

5.5.11 Ventilation Filter Testing Program (VFTP) (continued)

ESF Ventilation System	Penetration	Flowrate
Annulus Ventilation	< 1%	8000 cfm
Control Area Ventilation	< 0.05%	2000 cfm
Aux. Bldg. Filtered Exhaust (2 fans)(Unit 1)	< 1%	45,700 cfm
Aux. Bldg. Filtered Exhaust (2 fans)(Unit 2)	< 1%	40,500 cfm
Containment Purge (non-ESF) (2 fans)	< 1%	21,000 cfm
Fuel Bldg. Ventilation (non-ESF)	< 1%	35,000 cfm

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows the following penetration and system bypass when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI N510-1975 (N510-1980 for Auxiliary Building Filtered Exhaust) at the flowrate specified below ± 10%.

ESF Ventilation System	Penetration	Flowrate
Annulus Ventilation	< 1%	8000 cfm
Control Area Ventilation	< 0.05%	2000 cfm
Aux. Bldg. Filtered Exhaust (2 fans)(Unit 1)	< 1%	45,700 cfm
Aux. Bldg. Filtered Exhaust (2 fans)(Unit 2)	< 1%	40,500 cfm
Containment Purge (non-ESF) (2 fans)	< 1%	21,000 cfm
Fuel Bldg. Ventilation (non-ESF)	< 1%	35,000 cfm

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1979 (ASTM D3803-1989 for Annulus and Control Area Systems) at the temperature and relative humidity (RH) specified below.

REPLACE

ASTM D3803-1989

REMOVE

ESF Ventilation System	Penetration	RH	Temp.
Annulus Ventilation	< 4%	≥ 95%	≤ 30°C
Control Area Ventilation	< 0.95%	≥ 95%	≤ 30°C
Aux. Bldg. Filtered Exhaust	< 10%	≥ 95%	≤ 30°C
Containment Purge (non-ESF)	< 1%	≥ 95%	< 80°C
Fuel Bldg. Ventilation (non-ESF)	< 1%	≥ 95%	< 80°C

REPLACE < 4%

REPLACE < 4%

30°C

REPLACE

d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI N510-1975 at the flowrate specified below ± 10%.

(continued)

5.5 Programs and Manuals

5.5.11 Ventilation Filter Testing Program (VFTP) (continued)

ESF Ventilation System	Penetration	Flowrate
Annulus Ventilation	< 1%	8000 cfm
Control Area Ventilation	< 0.05%	2000 cfm
Aux. Bldg. Filtered Exhaust (2 fans)(Unit 1)	< 1%	45,700 cfm
Aux. Bldg. Filtered Exhaust (2 fans)(Unit 2)	< 1%	40,500 cfm
Containment Purge (non-ESF) (2 fans)	< 1%	21,000 cfm
Fuel Bldg. Ventilation (non-ESF)	< 1%	35,000 cfm

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows the following penetration and system bypass when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI N510-1975 (N510-1980 for Auxiliary Building Filtered Exhaust) at the flowrate specified below ± 10%.

ESF Ventilation System	Penetration	Flowrate
Annulus Ventilation	< 1%	8000 cfm
Control Area Ventilation	< 0.05%	2000 cfm
Aux. Bldg. Filtered Exhaust (2 fans)(Unit 1)	< 1%	45,700 cfm
Aux. Bldg. Filtered Exhaust (2 fans)(Unit 2)	< 1%	40,500 cfm
Containment Purge (non-ESF) (2 fans)	< 1%	21,000 cfm
Fuel Bldg. Ventilation (non-ESF)	< 1%	35,000 cfm

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at the temperature and relative humidity (RH) specified below.

ESF Ventilation System	Penetration	RH	Temp.
Annulus Ventilation	< 4%	95%	30°C
Control Area Ventilation	< 0.95%	95%	30°C
Aux. Bldg. Filtered Exhaust	< 4%	95%	30°C
Containment Purge (non-ESF)	< 4%	95%	30°C
Fuel Bldg. Ventilation (non-ESF)	< 4%	95%	30°C

d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI N510-1975 at the flowrate specified below ± 10%.

(continued)

Proposed Changes

In accordance with the requirements of 10CFR50.90 and 10CFR50.4, Duke Energy Corporation (DEC) proposes to revise the McGuire Nuclear Station Technical Specifications as stated below. The changes proposed by DEC in this License Amendment Request (LAR) are submitted in response to Generic Letter (GL) 99-02. That GL provided the NRC accepted protocol for testing of activated charcoal filters used in ESF ventilation systems. Note that GL 99-02 indicates that it is only applicable to ESF related ventilation systems. However, two non-ESF ventilation systems at McGuire, VP and VF, are designed to meet the guidance provided in Regulatory Guide 1.52, Revision 2. Consequently, these two non-ESF systems will be included in the scope of the proposed changes.

The proposed changes are as follows:

1. The first paragraph of Technical Specification 5.5.11, Section c, would be revised to remove the phrase

   "..tested in accordance with ASTM D3803-1979 (ASTM D3803-1989 for Annulus and Control Area Systems) at the temperature and relative humidity (RH) specified below."

   and replace it with the phrase

   "..tested in accordance with ASTM D3803-1989 at the temperature and relative humidity (RH) specified below."

2. The penetration value shown in Technical Specification 5.5.11, Section c, for the VA, VP, and VF systems would be revised to < 4%.

3. The test temperature and relative humidity for the systems shown in Technical Specification 5.5.11, Section c, would be revised to 30°C and 95%, respectively.

Note that GL 99-02 indicated that any Technical Specification changes submitted should specify the face velocity of any affected system that has a face velocity greater than 110% of 40 ft/min (i.e. > 44 ft/min). The Control Area Ventilation (VC) System, with a face velocity of 44.44 ft/minute, is the only system at McGuire for which GL 99-02 is applicable that has a face value in excess of 44 ft/min. Note that McGuire calculation MCC-1211.00-00-0066 - "Verification of Carbon Adsorber Residence Times" uses guidance and assumptions related to testing of charcoal filters contained in NRC Regulatory Guide 1.52, Revision 2 and referenced standard ANSI N510-1975. That calculation indicates that the VC system filters will have acceptable residence times with face velocities of up to 50 ft/min. Given this and the negligible amount that the VC system face velocity exceeds 44 ft/min, this LAR does not specify the VC system face velocity.

The VA, VP, and VF charcoal filter elemental/organic iodine efficiencies assumed in the McGuire analyses of offsite and control room operator doses following design-basis accidents are 70%/50%, 85%/85%, and 90%/70% respectively. Given these efficiencies, the safety factor of as low as 2 allowed by GL 99-02, and the in-place testing penetration and system bypass requirement of < 1% for the VA, VP, and VF systems shown in Technical Specification 5.5.11, Section b., McGuire is proposing to revise the VA, VP, and VF charcoal adsorber maximum methyl iodide penetrations shown in Technical Specification 5.5.11, Section c, to < 4%. The above changes will not result in any degradation in the ability of the affected filters to perform their design function.

Note that this LAR will not revise the maximum methyl iodide penetration of the Annulus Ventilation System (VE) and the Control Area Ventilation System (VC) charcoal filters specified in Technical Specification 5.5.11, Section c, since there are no plans to revise the acceptance criteria for the VE and VC charcoal filter efficiencies assumed in the McGuire offsite and control room operator dose analyses. Note that any reduction in these efficiencies would not allow McGuire to meet the offsite and control room operator dose requirements of 10CFR100, Subpart A and 10CFR50, Appendix A, GDC 19. In addition, this LAR will not reduce these maximum penetration values to accommodate any increase in the VE and VC safety factor used for determining filter efficiency acceptance criteria from the current value of 1 to the minimum safety factor of 2 suggested in GL 99-02. The current maximum methyl iodide penetration values specified in Technical Specification 5.5.11, Section c, which correlate to the current safety factor of 1 used for the VE and VC system were approved by an NRC in a Safety Evaluation Report (SER) dated July 15, 1991 issued in response to McGuire Technical Specification Amendments 122 and 104 (TAC Nos 80129 and 80130). As stated in that SER, there are conservatism's in the ASTM D3803-1989 test protocol. In addition, that SER noted the availability of heaters in the VE and VC systems to reduce humidity and improve filter efficiencies. Based upon the SER's findings, reductions in the maximum allowed VE and VC charcoal filter methyl iodide penetration to accommodate a safety factor of 2 would result in excessive change out of these charcoal filters without any significant corresponding increase in the health and safety of the public.

D. Proposed Change #3

ASTM D3803-1989 requires that charcoal testing be performed at 30°C and 95% relative humidity (+/- the temperature and relative humidity tolerances allowed by that standard). As stated in GL

No Significant Hazards Considerations:

In accordance with the criteria set forth in 10 CFR 50.91 and 50.92, McGuire Nuclear Station has evaluated this proposed Technical Specification change and determined it does not represent a significant hazards consideration. The following is provided in support of this conclusion.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

No. The proposed changes will ensure that the Technical Specification 5.5.11, Section c, required testing of charcoal filters in McGuire ventilation systems designed to meet the guidance provided in Regulatory Guide 1.52, Revision 2, are performed as per ASTM D3803-1989. This will ensure that these filters are capable of performing their design function to maintain offsite and control room operator doses within the limits of 10CFR100, Subpart A and 10CFR50, Appendix A, GDC 19, following a LOCA or a postulated fuel handling accident. Consequently, the proposed changes only deal with the performance of these systems during an accident and have no impact on accident probabilities. In addition, since the proposed changes help ensure the capability of the subject ventilation systems to perform their design function, there will be no reduction in the ability of these systems to minimize the consequences of a previously evaluated accident.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The proposed changes only help ensure the performance of the subject ventilation systems during an accident and have no impact on accident possibilities. No changes are being made to actual plant hardware or the way in which the plant is being operated. Therefore, no new accident causal mechanisms will be generated. Consequently, plant accident analyses will not be affected by these changes.

3. Does this change involve a significant reduction in a margin of safety?

No. Margin of safety is related to the confidence in the ability of the fission product barriers to perform their design functions during and following accident conditions. These barriers include the fuel cladding, the reactor coolant system, and the containment system. The performance of these barriers will not be degraded by the proposed changes. In addition, the proposed changes to the maximum methyl iodide penetration requirements

will not result in any degradation in the capability of the affected charcoal filters to perform their design function. As a result of the above, plant safety analyses will not be affected by the changes proposed in this LAR.