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0CAN129603

U. S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
Proposed Technical Specification Change Request Concerning The Control Room Ventilation System

Gentlemen:

By letter dated April 4, 1995 (0CAN049501), Entergy Operations proposed Technical Specification (TS) changes revising those requirements associated with the Arkansas Nuclear One Unit-1 (ANO-1) and Arkansas Nuclear One Unit-2 (ANO-2) Control Room emergency ventilation systems. The changes to the ANO-1 TS were intended to clarify the control room emergency habitability equipment requirements and make the requirements more consistent with those specified for ANO-2. One additional change to both the ANO-1 and ANO-2 requirements involved an extension to the allowed outage time for one inoperable train of the emergency air conditioning system from seven days to thirty days.

During subsequent discussions with the NRC staff reviewer, Entergy Operations was requested to revise the proposed control room filter testing requirements for ANO-1 and the existing control room filter testing requirements for ANO-2 to reflect the testing methodology of ASTM D3803-1989 as the laboratory testing standard. During these same discussions, the staff reviewer also requested changes in the proposed ANO-1 and existing ANO-2 filter testing acceptance criteria. This submittal contains the requested revisions and supersedes our April 4, 1995 submittal.

The proposed changes have been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c) and it has been determined that these changes involve no significant hazards considerations. The bases for these determinations are included in the attached submittal.

Although this request is neither exigent nor emergency, Entergy Operations requests your prompt review and approval of the attached changes and that the effective date for this change be within 30 days of NRC approval.

A003

Very truly yours,

CRH/CWS

Attachments

To the best of my knowledge and belief, the statements contained in this submittal are true.

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for Johnson **County and the State of Arkansas, this** 19 **day of** December **, 1996.**

Juana Tapp
Notary Public
My Commission Expires 11-8-2000

OFFICIAL SEAL
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ATTACHMENT

TO

0CAN129603

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NOs. DPR-51 and NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNITS ONE & TWO

DOCKET NOs. 50-313 and 50-368

DESCRIPTION OF PROPOSED CHANGES

The proposed changes to the Arkansas Nuclear One Unit-1 (ANO-1) Technical Specifications (TS) include the following:

1. The titles of TS Section 3.9 and 4.10 have been revised to read "Control Room Emergency Ventilation and Air Conditioning System."
2. Table of Contents pages (i) and (ii) have been revised to reflect the change in TS Section 3.9 and 4.10 titling.
3. TS 3.5.1.10 has been revised to clarify the requirement by specifying the number of chlorine detection systems required to be operable for control room emergency ventilation system actuation and the required mode of applicability.
4. TS 3.5.1.17 has been added to specify the mode of applicability for the control room ventilation radiation monitoring instrumentation.
5. A new requirement, TS 3.8.18, has been added to require the control room emergency air conditioning system and the control room emergency ventilation system to be operable during handling of irradiated fuel.
6. The Applicability of Specifications 3.9 and 4.10 has been revised to address the control room emergency ventilation and air conditioning system.
7. The Objectives of Specifications 3.9 and 4.10 have been revised to address the control room emergency ventilation and air conditioning system.
8. Specification 3.9.1 has been revised to specify the Limiting Conditions for Operation and the Required Actions associated with the control room emergency air conditioning system. The allowed outage time for 1 inoperable train of emergency air conditioning has been extended from seven days to thirty days.
9. Existing Specifications 3.9.1.a, 3.9.1.b, 3.9.1.c, 3.9.1.d, and 3.9.1.f have been deleted. Specification 4.10 now specifies the surveillance requirements associated with the control room emergency ventilation system.
10. Existing Specification 3.9.1.e has been deleted. This requirement is retained by Table 3.5.1-1 Functional Unit 9 under Other Safety Related Systems and by the proposed change to TS Table 3.5.1-1, Instrumentation Limiting Conditions for Operation, as Functional Unit 18 under Other Safety Related Systems.
11. Specification 3.9.2 has been revised to specify the Limiting Conditions for Operation and the Required Actions associated with the control room emergency ventilation system.
12. Existing Specifications 3.9.3 and 3.9.4 have been incorporated into the proposed specifications 3.9.1 and 3.9.2.
13. The Bases for Specification 3.5 have been rewritten to address the common control room for the two units, and include clarification of the contingency actions allowed for the control room habitability equipment in the event of equipment inoperability.

14. Surveillance Requirement 4.10.1 has been revised to incorporate the testing requirements associated with the control room emergency air conditioning system.

15. Surveillance Requirement 4.10.2 has been revised to clarify the testing requirements associated with the control room emergency ventilation system and incorporates the testing requirements formerly specified by TS 3.9.1, TS 4.10.2, 4.10.3, and 4.10.4. The testing requirements have also been revised for consistency with the testing requirements currently specified for ANO-2, and have been revised to adopt ASTM D3803-1989 as the laboratory testing standard for charcoal samples from the charcoal adsorbers in the control room filtration system.

16. Table 3.5.1-1 note 17 has been revised to delete the phrase "...restore the inoperable channels to operable status, or...".

17. TS Table 4.1-1, Instrument Surveillance Requirements, item 52, has been revised to require a shift check of the control room chlorine detectors for consistency with ANO-2.

18. The Bases associated with Specification 3.9, Specification 4.10, and TS Table 3.5.1-1 have been revised to reflect the changes to the specifications and have been rewritten to address the common control room for the two units, and include clarification of the contingency actions allowed for the control room habitability equipment in the event of equipment inoperability.

The proposed changes to the Arkansas Nuclear One Unit-2 (ANO-2) Technical Specifications include the following:

1. TS Table 3.3-6, Radiation Monitoring Instrumentation, instrument 2.b has been revised to specify both the ANO-1 control room area radiation monitor channel and the ANO-2 control room ventilation process monitor channel. Note 17 has been revised to specify the actions required if neither radiation monitor is operable. Note 20 has been added to specify the actions required in the event either of the radiation monitors is inoperable. The applicable modes for the control room ventilation radiation monitoring instrumentation have been revised.

2. The title of Section 3/4.7.6 has been revised to refer to the Control Room Emergency Ventilation and Air Conditioning Systems.

3. Table-of-Contents pages VIII and XIII have been revised to reflect the change in title for Section 3/4.7.6.

4. TS Table 4.3-3, Radiation Monitoring Instrumentation Surveillance Requirements, instrument 2.b has been revised to reflect the changes in TS Table 3.3-6, described above.

5. Specification 3.7.6.1 has been revised to address the Required Actions for control room emergency air conditioning inoperability separately from those specified for the control room air filtration system. The Mode of Applicability has been revised to require operability of the control room emergency air conditioning system and the control room ventilation system in Modes 1, 2, 3, 4, and during handling of irradiated fuel. Also, the

allowed outage time (AOT) associated with one inoperable train of emergency air conditioning has been extended from seven days to thirty days.

6. Surveillance Requirements 4.7.6.1.2.b.2 and 4.7.6.1.2.c have been revised to adopt ASTM D3803-1989 as the laboratory testing standard for charcoal samples from the charcoal adsorbers in the control room filtration system.

7. Surveillance Requirement 4.7.6.1.2.e has been revised to change the acceptance criteria for DOP testing of the filter banks.

8. The Bases associated with Section 3/4.3.3.1 have been revised to reflect the change in the Minimum Channels Operable for the control room radiation ventilation radiation monitoring specified in Table 3.3-6.

9. The Bases associated with Section 3/4.7.6 have been revised to reflect the change in title for the Section and have been rewritten to address the common control room for the two units, and include clarification of the contingency actions allowed for the control room habitability equipment in the event of equipment inoperability.

BACKGROUND

The ANO-1 and ANO-2 control rooms are located adjacent to one another. The control panels and equipment are physically separated by glass doors to eliminate interaction between the ANO-1 and ANO-2 systems. The glass doors do not extend to the ceiling and are open at the top to allow the ventilation systems to be shared by the two control rooms comprising a common control room ventilation envelope. The ANO-1 control room ventilation systems are described in ANO-1 Safety Analysis Report (SAR) sections 1.7.2 and 9.7.2.1. The ANO-2 control room ventilation systems are described in ANO-2 SAR sections 1.2.2.10.B and 9.4.1. The control room emergency ventilation system design is based on the combined heat loads from safety-related control equipment, occupancy, and lighting load.

There are two normal ventilation systems, one for the ANO-1 half and one for the ANO-2 half of the common control room envelope. An area radiation monitor is provided in the ANO-1 control room, and a process radiation monitor is provided at the supply duct for the ANO-2 portion of the normal ventilation system. On detection of high radiation, the common control room normal ventilation for ANO-1 and ANO-2 is isolated by dampers on all supply and return ducts, except for the outside air used for make-up to minimize unfiltered air inleakage, and the control room emergency air filtration system is actuated. Redundant, quick acting chlorine detectors are provided at the control room outside air intakes. Upon detection of high chlorine concentration by either detector, automatic isolation of the common control room normal ventilation occurs and the control room emergency air filtration system is actuated. Air conditioning for both control rooms under isolated control room conditions is maintained by package units located in the ANO-2 portion of the control room. The package air conditioners are normally powered from vital busses in ANO-2; but one package unit can be temporarily powered from a vital buss in ANO-1.

The control room emergency ventilation system filtration trains consist of VSF-9, 2VSF-9, and their associated filters. The VSF-9 filter train is located above the ANO-1 control room

in the computer room. This filter train is rated for a total flow rate of 2000 cfm. Approximately 1667 cfm of this total flow is recirculation air, taken from and returned to the control room envelope. The remaining 333 cfm is outside air, drawn from the computer room and turbine building, supplied for control room make-up when the system is placed in operation. The recirculated air flow is filtered by a roughing filter, a high efficiency particulate (HEPA) filter, and a 2 inch charcoal tray adsorber (VFC-2). The outside air supplied for make-up is filtered through a roughing filter, a HEPA filter, and a 2 inch charcoal tray adsorber (VFC-2A), mixed with the recirculated air flow, and then filtered by the roughing filter, HEPA filter, and 2 inch charcoal tray adsorber (VFC-2) described for the recirculated air flow. This arrangement results in filtering the 333 cfm make-up air flow through 4 inches of charcoal adsorber as defined in Regulatory Guide 1.52, "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," Revision 2, March 1978, Table 2. The 2VSF-9 filter train is located in the ANO-1 Auxiliary Building. This filter train is rated for a total flow rate of 2000 cfm. Approximately 1667 cfm of this total flow is recirculation air, taken from and returned to the control room envelope. The remaining 333 cfm is outside air, drawn from the ANO-1 Auxiliary Building, supplied for control room make-up when the system is placed in operation. Both the recirculated air and the make-up air flows are filtered by a roughing filter, HEPA filter, and a 4 inch deep bed charcoal adsorber (2VFC-8). The VSF-9 and 2VSF-9 ventilation trains are not equipped with heaters and are not designed to control the relative humidity of the ventilation flow stream. ANO-2 SAR Table 9.4-3 denotes the ANO-2 conformance with Regulatory Guide 1.52. In this table, it is noted that demisters are not required for the 2VSF-9 filter train. The VSF-9 filter train was originally installed for ANO-1 prior to the release of Regulatory Guide 1.52.

DISCUSSION OF CHANGES

ANO-1 Limiting Conditions for Operation

TS 3.5.1.10 previously required the operability of the control room ventilation chlorine detection system instrumentation. TS Table 3.5.1-1 Functional Unit 9 under Other Safety Related Systems specifies that 2 channels of the chlorine detection systems must be operable. TS 3.5.1.10 has been revised to require the operability of two independent control room ventilation chlorine detection systems whenever the reactor coolant system is above the cold shutdown condition. This change to TS 3.5.1.10 results in consistency between the specification and the table, clarifies the chlorine detection system instrumentation requirements, and is considered to be administrative in nature.

A new requirement, TS 3.5.1.17, has been added to specify that the radiation monitoring system instrumentation must be operable whenever the reactor coolant system is above the cold shutdown condition or during handling of irradiated fuel. Currently, TS 3.9.1.c requires that one circuit of the control room emergency air conditioning and isolation system be capable of automatic actuation whenever reactor building integrity is required. The TS 3.9.1.c requirement will be maintained by the inclusion of TS 3.5.1.17 and the proposed changes to TS 3.5.1.10. The incorporation of TS 3.5.1.17 results in a more restrictive requirement than

previously specified. This requirement assures the operability of the control room ventilation radiation monitoring system during those modes of operation in which the control room emergency ventilation system is required to be operable. The Bases for specification 3.5 have been expanded to address the proposed TS 3.5.1.17. As described in the proposed Bases, this requirement preserves a conservative assumption that the common control room atmosphere has poor mixing between the control rooms. This specification is intended to require that the ANO-1 control room radiation monitor channel and the ANO-2 control room ventilation process radiation monitor channel are operable. With these changes, the instrumentation systems that automatically actuate the control room emergency ventilation system (chlorine and control room radiation) are both specified in Table 3.5.1-1 and the requirements currently specified by TS 3.9.1.e are deleted. This change is considered to be administrative in nature.

A new requirement has been added to instrumentation table 3.5.1-1 Operational Safety Instrumentation, Functional Unit 18 under Other Safety Related Systems, addressing control room isolation on high radiation; this clearly defines the requirements for the control room radiation monitoring instrumentation systems and maintains consistency with the proposed TS 3.5.1.17 discussed above. Notes 17 and 18 specify the actions required in the event one or both of the radiation monitoring instruments is inoperable. With one inoperable radiation monitor channel, Note 18 allows operation to continue for a 7 day period while repairs are being made. If the inoperable channel is not returned to service within the 7 day period, the control room ventilation system must be placed in the recirculation mode of operation within the next 6 hours. With no operable radiation monitor channel, Note 17 requires the control room ventilation system to be placed in the recirculation mode of operation within 1 hour. These actions are consistent with those actions previously specified by TS 3.9.2 and 3.9.3 for inoperable circuits of the control room emergency air conditioning and isolation system. This change is considered to be administrative in nature.

Note 17 of Table 3.5.1-1 has been revised for clarity. This note, as worded, could be interpreted as conflicting with note 18. Note 17 would appear to require that all inoperable channels must be restored to operable status within 1 hour or compensatory measures must be implemented. This would prevent the use of note 18 in the event one channel is returned to operable status. This change results in greater clarity, implements a philosophy consistent with returning other inoperable multi-train systems to operable status and is considered to be administrative in nature.

A new requirement, TS 3.8.18, has been added to require the control room emergency air conditioning system and the control room emergency ventilation system to be operable during handling of irradiated fuel. The proposed change ensures that the control room emergency air conditioning system and the control room emergency ventilation system are operable during those conditions during which a fuel handling accident might occur. The fuel handling accident analysis assumes that the control room emergency ventilation system is actuated. This change results in a more restrictive requirement than previously specified.

TS Table 4.1-1, "Instrument Surveillance Requirements," item 52, Chlorine Detectors, has been revised to require the performance of a channel check once per shift. This change results

in a more restrictive requirement than the currently specified once per day, and has been made for consistency with the ANO-2 TS 4.3.3.7 requirements for the chlorine detectors. This change is considered more restrictive in nature.

The control room habitability equipment includes an emergency ventilation system and an emergency air conditioning system. The title, applicability, and objective of the ANO-1 specification and surveillance sections associated with TS 3.9 and 4.10 have been revised to clarify and reflect the correct nomenclature of the systems, and also makes the ANO-1 requirements consistent with ANO-2 requirements. These changes also require that Table-of-Contents pages (i) and (ii) be revised for consistency. For clarity this proposed change separates the former section 3.9.1 into a section 3.9.1 for the control room emergency air conditioning system requirements and 3.9.2 for the control room emergency ventilation system requirements.

The proposed TS 3.9.1.1 requires two independent trains of the control room emergency air conditioning system to be operable whenever the reactor coolant system is above the cold shutdown condition or during handling of irradiated fuel. The proposed change preserves the existing requirement, specified by TS 3.9.1, requiring operability of the systems whenever containment integrity is required. This change is administrative in nature in that the current requirements are maintained.

The proposed TS 3.9.1.2 specifies the actions required in the event one train of the control room emergency air conditioning system is inoperable. Changes to this specification will be discussed in more detail in the section detailing changes common to both ANO-1 and ANO-2.

The proposed TS 3.9.2.1 requires two independent trains of the control room emergency ventilation system to be operable whenever the reactor coolant system is above the cold shutdown condition or during handling of irradiated fuel. The proposed change preserves the existing requirement, specified by TS 3.9.1, requiring operability of the systems whenever containment integrity is required. This change is administrative in nature in that the current requirements are maintained.

The proposed TS 3.9.2.2 requires restoration of an inoperable system to operable status within 7 days, as does the existing TS 3.9.2. If the component is not restored to operable status within the 7 day allowable outage time, a plant shutdown to the Hot Shutdown condition is required within 6 hours and to Cold Shutdown within the following 30 hours. The existing requirement, specified by TS 3.9.4, requires placing the reactor in the Cold Shutdown condition within 36 hours. The proposed requirement would also result in placing the reactor in the Cold Shutdown condition within 36 hours. This change results in a more restrictive requirement as an intermediate mode and time limit are now specified. This specification is consistent with the ANO-2 Action Statement for this condition as both the ANO-2 Hot Standby condition and the ANO-1 Hot Shutdown condition both result in placing the reactor in a subcritical condition.

The requirements currently specified as TS 3.9.1.a, b, c, d, and f are in actuality surveillance requirements and are specified by the proposed changes to Specification 4.10. The following listing provides the current requirement and the proposed requirement that will provide equivalent or more restrictive testing requirements:

Current Requirement	Proposed Surveillance Requirement
3.9.1 a and b	4.10.1.2.d
3.9.1.c	4.10.1.2.a
3.9.1.d	4.10.1.2.e
3.9.1.f	4.10.1.4

TS 3.9.1.e currently requires one circuit of the control room emergency air conditioning and isolation system to be capable of automatic initiation. This requirement will be maintained by the proposed changes to TS 3.5.1.10, the incorporation of TS 3.5.1.17, by inclusion of the control room radiation monitoring system in Table 3.5.1-1, and by the existing Table 3.5.1-1 requirements on the chlorine detection system. Relocation of this requirement is considered to be administrative in nature.

TS 3.9.3 currently provides the option of isolating the fire dampers or disabling the supply fan in order to accomplish sealing of the control room in the event that the control room isolation dampers cannot isolate the control room. Closing the fire dampers provides the intent of sealing the control room from a potentially toxic environment. This action is considered to be a contingency measure and has been deleted. TS 3.9.2 and 3.9.4 have been split out by system and are now contained within their respective system specification, 3.9.1 and 3.9.2. Disabling the supply fan does not result in isolation of the normal control room ventilation, and this option will no longer exist with this TS change.

As the control room environment is common to both ANO-1 and ANO-2, the bases have been changed to reflect this and other changes made to the specifications. Additional information has been included in the Specification 3.9 Bases addressing the ability for ANO-1 to supply vital power and cooling water to control room emergency ventilation equipment which is normally fed from ANO-2. With one emergency air conditioning unit supplied from ANO-1 and the remaining unit supplied from ANO-2, redundancy in electrical supplies and cooling water supplies is maintained. This is considered to be a clarification and describes the unique ability of ANO to take credit for the equipment when in this configuration.

ANO-1 Surveillance Requirements

The surveillance specification has been separated into two sections addressing the control room emergency ventilation system and the control room emergency air conditioning system. The surveillance requirements have been revised to incorporate the more restrictive testing requirements of the ANO-2 TS. New surveillance requirements have been added to include specific surveillance requirements associated with the emergency air conditioning system that are currently contained in the ANO-2 TS. Additionally, the surveillance requirements associated with the control room emergency ventilation system have been revised to be

consistent with the requirements currently specified by the ANO-2 TS. The following discussion describes the changes to the ANO-1 surveillance requirements:

Proposed Specification 4.10.1 now specifies the surveillance requirements associated with the control room emergency air conditioning system. This specification incorporates the testing frequency requirement formerly specified in TS 4.10.4 related to the emergency air conditioning system. This specification also incorporates testing requirements not formerly specified in the ANO-1 TS. The additional requirement requires verification of system flow rate at least once per 18 months. These changes result in testing requirements that are consistent with those currently specified in the ANO-2 TS for the control room emergency air conditioning system. No requirements are reduced by this change, and the change results in clarifying the testing requirements. The testing requirements currently specified by TS 4.10.1 have been relocated as TS 4.10.2.d.1.

Proposed Specification 4.10.2 now specifies the testing requirements associated with the control room emergency ventilation system and the associated filtration trains.

Specification 4.10.2.a incorporates the testing requirement previously specified by TS 4.10.4 requiring monthly operation. This requirement has been revised for consistency with the ANO-2 TS and now requires operation for a 15 minute period instead of the previously required 1 hour period. The control room emergency ventilation system does not contain heaters. Therefore, this test is performed only to demonstrate the ability of the system to function. The 15 minute run is sufficient to verify the ability of the control room emergency ventilation units to ventilate the control room.

Specification 4.10.2.b incorporates the testing requirements that must be performed following significant painting, fire, or chemical release formerly specified by TS 4.10.3.a. The testing requirements and the associated acceptance criteria have been revised to be consistent with the ANO-2 TS.

TS 4.10.2.b.1 now requires the filtration systems associated with the control room emergency ventilation system to satisfy the in-place testing requirements of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide (RG) 1.52, Revision 2, March 1978. Regulatory Position C.5.a requires a visual inspection of the cleanup system prior to each in-place airflow distribution test, DOP test, or activated carbon adsorber section leak test in accordance with the provisions of Section 5 of ANSI N510-1975. This inspection is a test not previously specified in the ANO-1 TS and constitutes an additional testing requirement. The inspection is currently required by the ANO-2 TS. Regulatory Position C.5.c specifies that the in-place DOP test for HEPA filters should confirm a penetration of less than 0.05% at rated flow. The requirement currently specified by TS 3.9.1.a requires the in-place DOP test for HEPA filters to show ≥99% DOP removal (1% penetration). The revised specification is more conservative than the existing specification and is consistent with the testing requirements of the ANO-2 TS. Regulatory Position C.5.d specifies that the leak test with a gaseous halogenated hydrocarbon ensures that bypass leakage through the adsorber section is less than 0.05%. The requirement currently specified by TS 3.9.1.a requires the halogenated

hydrocarbon test on the charcoal adsorber banks to show ≥99% halogenated hydrocarbon removal (1% bypass leakage). The revised specification is more conservative than the existing specification and is consistent with the testing requirements of the ANO-2 TS. These tests will be performed at the system rated flow, as required by Regulatory Positions C.5.c and C.5.d, of 2000 cfm ±10%.

TS 4.10.2.b.2 now requires that within 31 days of removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of RG 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a. The method of carbon sampling is not currently specified in the ANO-1 TS. Changes in the ANO-1 laboratory analysis requirements will be discussed in detail in the section dealing with ANO-1 and ANO-2 common changes.

TS 4.10.2.b.3 now requires verification of a system flow rate of 2000 cfm ±10% during system operation when tested in accordance with ANSI N509-1975. This requirement incorporates the existing TS 3.9.1.c requirement showing that the fans operate within ±10% of design flow. This revision results in greater clarity in the ANO-1 testing requirement and is consistent with the ANO-2 TS.

TS 4.10.2.c now specifies the testing that must be performed after every 720 hours of charcoal adsorber operation, incorporating the testing requirements of current TS 4.10.3.a for sampling every 720 hours of operation, except as noted below. This testing will now consist of laboratory analysis of a representative carbon sample as discussed in the section dealing with ANO-1 and ANO-2 common changes. The current requirements to perform in-place cold DOP and halogenated hydrocarbon tests (current TS 3.9.1.a) and verification of system flow rate (current TS 3.9.1.c) after every 720 hours of adsorber operation have been deleted. The deletion of these tests is acceptable based upon the current requirements in the ANO-2 TS, and based upon the requirements of RG 1.52, Revision 2, March 1978. RG 1.52, Revision 2 does not require in-place DOP and halogenated hydrocarbon testing every 720 hours of adsorber operation (see Regulatory Positions C.5.c and C.5.d). This change results in consistency between the ANO-1 and ANO-2 specifications and is consistent with the requirements of RG 1.52, Revision 2, March 1978.

TS 4.10.2.d now specifies other testing that is required on an 18 month interval. TS 4.10.2.d.1 incorporates the testing requirements and acceptance criteria previously specified by TS 4.10.1 and 3.9.1.d. This change places the testing requirement with the acceptance criteria in an administrative relocation of the testing requirements. A specific value, 2000 cfm, is now specified instead of the current wording "system design flow rate." This specification is consistent with the ANO-2 TS. TS 4.10.2.d.2 incorporates the testing requirements and acceptance criteria previously specified by TS 3.9.1.f and 4.10.2. This change is an administrative relocation of the testing requirements. This proposed specification is consistent with the ANO-2 TS.

TS 4.10.2.e now specifies the testing requirements and acceptance criteria previously specified by TS 4.10.3.b and 3.9.1.a for DOP testing following complete or partial replacement of the

HEPA bank filter or after structural maintenance on the filter housing. The acceptance criteria have been revised from 99% DOP removal (1% penetration) to 99.95% DOP removal (0.05% penetration) in accordance with Position C.5.c of RG 1.52, Rev. 2. This change places the testing requirements with the acceptance criteria and results in a more restrictive testing requirement.

TS 4.10.2.f now specifies the testing requirements and acceptance criteria previously specified by TS 4.10.3.c and 3.9.1.a for halogenated hydrocarbon testing following complete or partial replacement of the HEPA bank filter or after structural maintenance on the filter housing. No requirements are changed in this relocation. This change is an administrative relocation of the testing requirements. This specification is consistent with the ANO-2 TS.

Changes to the Bases reflect the changes in system nomenclature, incorporate a discussion of the function of the control room emergency air conditioning system, and describe the rewritten surveillances as described above.

ANO-2

TS Table 3.3-6, Radiation Monitoring Instrumentation, instrument 2.b, Control Room Ventilation Intake Duct Monitor, has been revised. This item now applies to the Control Room Ventilation Radiation Monitor channels, and specifies the requirements, required Actions, and Modes of Applicability associated with the ANO-1 control room area radiation monitor channel and the ANO-2 control room ventilation process monitor channel. The ANO-1 control room area monitor channel is not specifically identified in the current ANO-2 TS. This change incorporates the maximum alarm setpoint for the monitor of ≤ 7 mR/hr and the range of the monitor as 0.1 - 10^4 mr/hr. The Minimum Channels Operable has been changed from one to two to incorporate the ANO-1 control room radiation monitor channel. The associated Bases (3/4.3.3.1) have also been revised to clarify this requirement by describing the two radiation monitor channels that serve this function. The Applicable Modes has been changed from "ALL MODES" and now refers to Note 2. Note 2 has been added to the bottom of Table 3.3-6 and requires the control room ventilation radiation monitoring instrumentation to be operable in Modes 1, 2, 3, 4, and during handling of irradiated fuel. This change in Mode of Applicability is a relaxation of the existing requirement. The relaxation is acceptable based on the fuel handling accident analysis dose consequences. The proposed change ensures the availability of the radiation monitoring system to actuate the control room emergency ventilation system in the event of a fuel handling accident. When the unit is in Mode 5 and Mode 6 (with no handling of irradiated fuel), no accident condition has been identified that would require the control room emergency ventilation system to actuate on high radiation.

The titles of Section 3/4.7.6 and its associated Bases have been revised to refer to the Control Room Emergency Ventilation and Air Conditioning System. This title change is made for consistency between ANO-1 and ANO-2 and is considered to be administrative in nature. This change also requires revisions to table-of-contents pages VIII and XIII for consistency.

Specification 3.7.6.1 has been revised to refer to the control room emergency ventilation and air conditioning system. This change is made for consistency and is administrative in nature. The Mode of Applicability has been revised to require the operability of this system in Modes 1, 2, 3, 4, and during handling of irradiated fuel. This change results in more restrictive requirements than previously specified, and requires the system to be operable during those plant conditions in which a postulated accident could require system actuation. The Actions associated with Specification 3.7.6.1 have been revised to separately specify the required actions for inoperable emergency air conditioning systems in Action a and inoperable emergency ventilation systems in Action b. This change has been made to clarify the action requirements.

TS 4.7.6.1.2.e specifies the DOP testing requirements for the HEPA filter banks following a complete or partial replacement. The acceptance criteria have been revised from 99% DOP removal (1% penetration) to 99.95% DOP removal (0.05% penetration) in accordance with Position C.5.c of RG 1.52, Rev. 2. This change results in a more restrictive testing requirement.

As the control room environment is common to both ANO-1 and ANO-2, the bases have been changed to reflect this and other changes made to the specifications. Additional information has been included in the Specification 3.7.6 Bases addressing the ability for ANO-1 to supply vital power and cooling water to control room emergency ventilation equipment which is normally fed from ANO-2. With one emergency air conditioning unit supplied from ANO-1 and the remaining unit supplied from ANO-2, redundancy in electrical supplies and cooling water supplies is maintained. This is considered to be a clarification and describes the unique ability of ANO to take credit for the equipment when in this configuration.

ANO-1 and ANO-2

The allowed outage time (AOT) associated with the inoperability of one train of emergency air conditioning (proposed ANO-1 Specification 3.9.1 and proposed ANO-2 Action a) has been extended from 7 days to 30 days. This 30 day AOT has been approved by the NRC and incorporated in NUREG-1430, Standard Technical Specifications B&W Plants, and NUREG-1432, Standard Technical Specifications CE Plants.

An evaluation utilizing probabilistic safety assessment techniques to support the AOT extension has been conducted by Entergy Operations. The probability of an event occurring that would require control room isolation can be conservatively estimated by assuming that all sequences of events that lead to core damage and all large break loss-of-coolant accidents (LOCAs) initiate automatic control room isolation due to high radiation. Thus, the probability is the currently estimated overall core damage frequency, plus the large break LOCA initiating event frequency, minus the large break LOCA event sequences that lead to core damage (these are already counted by the addition of all large break LOCAs whether they lead to core damage or not). Since either unit could have a core damage sequence of events or large break

LOCA that would isolate the entire control room envelope for both units, the frequency numbers for both units must be summed to get the total probability of an event that would require control room isolation.

	ANO-1[1]	ANO-2[2]
Core Damage Frequency (CDF) from Internal Event =	4.67E-5/yr	3.285E-5/yr
+Large Break LOCA Initiating Event Frequency =	1E-4/yr	1E-4/yr
-Large Break LOCA Contribution to CDF =	7.52E-7/yr	1.389E-6/yr
Frequency of Internal Event Requiring CR Isolation =	1.46E-4/yr	1.31E-4/yr

Total Frequency of an Internal Event Requiring Control Room Isolation = 2.77E-4/yr.

[1]Values taken from the ANO-1 Probabilistic Risk Assessment Summary Report, April 1993
[2]Values taken from the ANO-2 Probabilistic Risk Assessment Summary Report, August 1992

The contribution of certain external events to the overall CDF at ANO has also been addressed. Although there have not been any comprehensive calculations of CDF due to external events, any such analyses would be expected to produce results so low that they would have a negligible impact on the above calculated frequency. However, seismic events, flooding, and extreme wind effects are addressed below.

An indication of the expected relative magnitude of CDF due to design basis earthquakes (DBEs) at ANO (0.2g peak ground acceleration) can be determined by utilizing the results provided in the Oconee Nuclear Station Unit 3 Probabilistic Risk Assessment, Revision 1, and correcting for the difference in annual probability of a DBE at each site. Per EPRI Document NP-6395-D, April 1989, the annual probability of having a seismic event at ANO that exceeds 0.2g is 3E-5; the annual probability of exceeding 0.1g at Oconee (their safe shutdown earthquake) is 4.4E-4. From the Oconee Unit 3 Probabilistic Risk Assessment Summary, the seismically induced CDF at Oconee is 5E-5. Thus, for ANO the estimated CDF due to a DBE is [(3E-5/4.4E-4)x5E-5] = 3.4E-6. It is recognized that this calculation contains a high degree of uncertainty, but it is believed to be a valid approximation of the relative contribution to CDF of a DBE at ANO. Although this result is small compared to the frequency calculated for internal events, it will be added to the previously calculated frequency. Doubling this result (to account for two units) and adding it to the above calculated frequency of 2.77E-4/yr gives a new frequency of 2.84E-4 for events requiring control room isolation.

Seismic events are considered to be the bounding external events from a risk perspective. The frequency of other external events leading to core damage are judged to be so low that they would not increase the above calculated frequency of an event requiring control room isolation. Although the frequency of other external events may be similar to that of the DBE (for example, for ANO, the frequency of a flood is 3.2E-5 and of a tornado is 5.1E-4), the frequency of these events leading to core damage should be far less than the frequency estimated due to the DBE. This is because the damage to the plant from these events tends to be more localized, as opposed to a seismic event which will affect the entire site (including

components internal to structures). Thus, for floods and tornadoes, the probability of sequences that could occur and lead to core damage would have to be multiplied by the event initiation frequency. The resulting CDFs would then be expected to be so low (less than 1E-6) as to not affect the above calculation.

Therefore, the total frequency of an event requiring control room isolation = 2.84E-4/yr.

Plant records show that there were a total of 24 failures of the control room emergency chillers between June 1, 1989, and May 31, 1994. Since the chillers are tested monthly in accordance with the existing TS requirements, there were 120 tests performed during this same time period. The probability of failure of an operable emergency control room chiller is estimated to be: = (24 failures/2 trains)/(120 "demands"/2 trains) = 0.2/demand.

The frequency of a control room isolation event occurring, followed by a failure of the operable emergency control room chiller, while the other emergency chiller is inoperable, is estimated to be:

=(2.84E-4/yr)x(30 days outage time/365 days)x(1 chiller demand)x(0.2/demand)= 4.67E-6/yr.

Based on the current TS allowable outage time of 7 days, the frequency of the above sequence of events is 1.09E-6/yr,(7/30 x 4.67E-6). Thus, the frequency of an event requiring control room isolation, followed by failure of the operable emergency control room chiller, would increase by only 3.58E-6/yr due to the proposed TS change in allowable outage time. These results are considered to be acceptably low for these events; it is noted that the results do not represent additional CDF sequences. Also, the results are not inconsistent with the assumptions used to justify a 30 day allowable outage time in the NUREG 1430 and NUREG 1432 revised Standard TS, as identified in the associated Bases contained in these NUREGs (i.e., there is a low probability of an event occurring that would require control room isolation, coupled with failure of the remaining operable emergency control room chiller).

This change also adopts ASTM D3803-1989 as the laboratory testing standard for charcoal samples from the charcoal adsorbers in the ANO-1 and ANO-2 control room emergency ventilation system. The ANO-1 TS Bases state that "Radioactive methyl iodide removal efficiency tests shall be performed in accordance with RDT Standard M16-IT. If laboratory test results are unacceptable, all charcoal adsorbents in the system shall be replaced with charcoal adsorbent qualified according to Regulatory Guide 1.52." The acceptance criteria for the test are specified in ANO-1 TS 3.9.1.b. ANO-2 TS 4.7.6.1.2.b.2 and 4.7.6.1.2.c require testing of "a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978. RG 1.52 references ANSI N509-1976, "Nuclear Power Plant Air Cleaning Units and Components." ANSI N509-1976 specifies that the testing is to be performed in accordance with paragraph 4.5.3 of Military Specification RDT M16-IT, "Gas Phase Adsorbents for Trapping Radioactive Iodine and Iodine Components" (year not specified). A comparison of the current and proposed testing requirements is shown in the following table:

	Test Parameter	Current	Proposed
ANO-1 (Two 2 inch filters no heaters)	Temperature Relative Humidity Penetration	≥125F (52°C) 95% 10%	30°C 95% 2.5%
ANO-2 (One 4 inch filter no heaters)	Temperature Relative Humidity Penetration	80°C 70% 0.175%	30°C 95% 0.5%

As shown, Entergy Operations proposes to revise the test temperature from 52°C, for ANO-1, and 80°C, for ANO-2, to 30°C. Information Notice 86-76, "Problems Noted in Control Room Emergency Ventilation Systems," indicated that laboratory testing of charcoal at a temperature higher than that expected during the course of an accident could result in an overpredicition of the capability of the charcoal to remove methyl iodine. The quantity of water retained by charcoal is dependent on temperature. Generally, the higher the temperature the less water retained. The water retained by the carbon decreases the efficiency of the carbon to adsorb other contaminants. For example, at 30°C and 95% relative humidity, carbon will retain about 40 weight percent water. At 80°C and 95% relative humidity, carbon retains only about 2 to 3 weight percent water. Therefore, the lower temperature test medium of the proposed TS will yield more conservative results than the present TS.

ASTM D3803-1989 specifies a test temperature of 30°C for both pre- and post-test sweep of the sample instead of the 25°C of RDT M16-IT. There is little difference in the adsorption behavior of carbon between these two temperatures. The increase from 25°C to 30°C does not represent a significant decrease in the test results for the CREVs.

Pre-test humidity equilibration is achieved by sweeping air of the appropriate humidity through the test carbon. The present TS references require the charcoal to be equilibrated to 25°C and 70% relative humidity. The methyl iodide test medium would then be instantaneously introduced at 52°C for ANO-1 and 80°C for ANO-2. Testing charcoal with such thermal step changes could cause condensation on the charcoal sample and result in invalidating the test. This is supported by paragraph 12.41 of ASTM D3803-1979, which states with respect to relative humidity of the test medium that "tests at saturation or above give very erratic results." Because of this, the ASTM D3803-1989 standard includes a 2 hour pre-test thermal-only stabilization at 30°C and specifies a temperature of 30°C for all phases of the test. Therefore, ASTM D3803-1989 results in a better test because it solves the problem of the potential formation of condensation on the charcoal sample.

The ASTM D-3803-1989 standard is more stringent than the RDT M16-IT standard since it has smaller tolerances that result in more acceptable reproducibility of the test and it requires that the carbon sample be pre-test equilibrated for a much longer duration. The longer pre-equilibration is conservative since it will completely saturate the representative carbon sample to the condition to which the subject charcoal adsorbers are expected to be exposed during design basis conditions. During the pre-equilibration, the charcoal is exposed to a flow of air

controlled at the test temperature and relative humidity before the challenge gas is fed through the charcoal. The purpose of the pre-equilibration phase of the test is to ensure that the charcoal has stabilized at the specified test temperature and relative humidity for a period of time which results in the charcoal adsorbing all the available moisture before the charcoal is challenged with methyl iodide. Therefore, the measured methyl iodide removal efficiency is lower than it is if pre-equilibration is not performed. Therefore, the proposed testing in accordance with the ASTM D3803-1989 standard will result in a more realistic prediction of the capability of the charcoal.

Changes are also proposed in the limits for methyl iodide penetration through the carbon samples taken from the CREVS filter units. Entergy Operations proposes reducing the allowed penetration for each of the two 2 inch charcoal adsorbers associated with VSF-9 from 10% to 2.5% and increasing the allowed penetration for the one 4 inch charcoal adsorber associated with 2VSF-9 from 0.175% to 0.5%. The change in the 2 inch charcoal adsorber efficiency results in a more restrictive test than that currently specified. Although the proposed change in the 4 inch charcoal adsorber efficiency is less conservative than the current 0.175% penetration, the RDT M16-IT standard when used with a 0.175% penetration is less conservative than the ASTM D3803-1989 standard when used with a 0.5% penetration because the ASTM standard is a much more stringent test. Entergy Operations has concluded that an adequate safety margin exists, when the proposed ASTM D3803-1989 standard is used, to credit a charcoal filter adsorption efficiency of 95% for radioiodine for a single 2 inch charcoal adsorber, and 99% for either one 4 inch charcoal adsorber or two 2 inch charcoal adsorbers in series to conform with the 10 CFR Part 100 and GDC 19 limits.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

An evaluation of the proposed change has been performed in accordance with 10CFR50.91(a)(1) regarding no significant hazards considerations using the standards in 10CFR50.92(c). A discussion of these standards as they relate to this amendment request follows:

Criterion 1 - Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

The control room emergency ventilation and air conditioning systems are not initiators of an accident previously evaluated. Extension of the allowable outage time for one inoperable control room emergency air conditioning system from 7 days to 30 days is acceptable based on the low probability of an event occurring that would require control room isolation and a concurrent or subsequent failure of the remaining operable control room emergency air conditioning system. An evaluation using probabilistic safety assessment techniques has shown the frequency of this event to be at an acceptably low level (4.67E-6/yr). The ANO-1 surveillance requirements for the control room emergency ventilation and air conditioning system have been updated for consistency with the ANO-2 requirements and are consistent with RG 1.52, March 1978, Revision 2 and ASTM D3803-1989. The change in the ANO-2 Mode of Applicability for the control room radiation monitoring instrumentation is acceptable

because the only identified accident scenario requiring control room isolation on high radiation while in Modes 5 and 6 is the fuel handling accident and this analysis shows that the dose consequences to the control room operators are acceptable in the event of a fuel handling accident, assuming that the normal control room ventilation system is properly isolated. The remainder of the changes have been made for consistency between the ANO-1 and ANO-2 TS and are considered to be more restrictive or administrative in nature.

Therefore, this change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

Criterion 2 - Does Not Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated.

The control room emergency ventilation and air conditioning systems are not accident initiators. The proposed changes introduce no new mode of plant operation and no new possibility for an accident is introduced by modifying the ANO-1 surveillance testing requirements for the control room emergency ventilation and air conditioning systems.

Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

Criterion 3 - Does Not Involve a Significant Reduction in the Margin of Safety.

With the exception of the AOT extension and the relaxation of the ANO-2 Mode of Applicability for the control room radiation monitoring instrumentation, all the ANO-1 and ANO-2 changes are considered administrative or more restrictive and are intended to clarify and make consistent the requirements of the control room emergency habitability equipment. Although the AOT extension does involve an incremental reduction in the margin of safety due to a slight increase in the frequency of an event requiring control room isolation, followed by failure of the operable emergency control room chiller, a probabilistic safety assessment has shown this slight increase in frequency (approximately 3.58E-6/yr) to be acceptably low. The change in the ANO-2 Mode of Applicability for the control room radiation monitoring instrumentation is acceptable because the only identified accident scenario requiring control room isolation on high radiation while in Modes 5 and 6 is the fuel handling accident and this analysis shows that the dose consequences to the control room operators are acceptable in the event of a fuel handling accident, assuming that the normal control room ventilation system is properly isolated.

Therefore, this change does not involve a significant reduction in the margin of safety.

Therefore, based upon the reasoning presented above and the previous discussion of the amendment request, Entergy Operations has determined that the requested change does not involve a significant hazards consideration.