Entergy

Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72801
Tel 501-858-4888

Craig Anderson
Vice President
Operations ANO

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1CAN020001

U. S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Supplemental Revision To Technical Specification Change Request For ANO-1 Laboratory Testing Of Activated Charcoal

Gentlemen:

Attached for your review and approval are proposed changes to the Arkansas Nuclear One – Unit 1 (ANO-1) Technical Specifications (TS). The proposed changes affect the ANO-1 Specifications 3.13.1.b and 3.15.1.b regarding laboratory testing of activated charcoal used in the Penetration Room and Fuel Handling Area Ventilation Systems. A proposed revision to the testing standards was submitted to the Nuclear Regulatory Commission (NRC) on November 23, 1999 (CNRO-99/00026) as part of a combined Entergy Operations, Inc. application. However, the revisions did not delete the current flow requirements of the aforementioned specifications in favor of that of the new standard.

NRC Generic Letter (GL) 99-02 requested licensees to perform laboratory testing of activated charcoal in accordance with American Society for Testing and Materials (ASTM) D3803-1989 at the next required laboratory surveillance test. In Entergy Operations, Inc. submittal CNRO-99/00026, the ASTM D3803-1989 standard and the guidance provided in GL 99-02 were proposed for incorporation into the TSs for the Entergy nuclear sites. The affected TSs for ANO-1 contained a clause that such laboratory testing would be performed at a velocity within ± 20% of system design. The specified velocity does not necessarily comply with the ASTM D3803-1989 standard and should have been proposed for deletion from the specification. Therefore, this letter is intended to supplement the original CNRO-99/00026 submittal by proposing the deletion of the specified velocity from the specification. The proposed change affects only the ANO-1 TSs.

These proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that the changes involve no significant hazards considerations. The basis for this determination is included in the attached submittal.

Entergy Operations, Inc. requests prompt approval of the proposed changes in conjunction with the approval of CNRO-99/00026 with an implementation period of 60 days.

A001

Very truly yours,

CA/dbb
Attachment

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 Pope **County and the State of Arkansas, this** 24th **day of** February**, 2000.**

Notary Public
My Commission Expires 12/15/2007

"OFFICIAL SEAL"
Andrea Pierce
Notary Public, State of Arkansas
County of Pope
My Commission Exp. 12/15/2007

cc: Mr. Ellis W. Merschoff
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

NRC Senior Resident Inspector
Arkansas Nuclear One
P.O. Box 310
London, AR 72847

Mr. Chris Nolan, Project Manager
U. S. Nuclear Regulatory Commission
NRR Mail Stop 04-D-3
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Mr. David D. Snellings
Director, Division of Radiation
Control and Emergency Management
Arkansas Department of Health
4815 West Markham Street
Little Rock, AR 72205

ATTACHMENT 1

TO

1CAN020001

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. DPR-51

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT ONE AND UNIT TWO

DOCKET NO. 50-313

DESCRIPTION OF PROPOSED CHANGES

The proposed change to the Arkansas Nuclear One, Unit 1 (ANO-1) Technical Specifications (TS) is necessary to eliminate the existing TS velocity requirements related to laboratory testing of activated charcoal in favor of the test parameter specifications contained within American Society for Testing and Materials (ASTM) D3803-1989. Although the attached revised TS pages and markups illustrate the changes proposed in this submittal and those proposed in Entergy Operations, Inc. letter CNRO-99/00026 dated November 23, 1999, discussions will be limited to the revisions requested within this submittal. The following revisions are proposed:

- Delete the clause associated with Penetration Room Ventilation system velocity requirements within Specification 3.13.1.b on page 66c. The velocities are controlled by the test parameter specifications set forth in ASTM D3803-1989.

- Delete the clause associated with Fuel Handling Area Ventilation system velocity requirements within Specification 3.15.1.b on page 66g. The velocities are controlled by the test parameter specifications set forth in ASTM D3803-1989.

BACKGROUND

Safety-related air-cleaning units used in the Engineered Safety Features (ESF) ventilation systems of nuclear power facilities reduce the potential onsite and offsite consequences of a radiological accident by adsorbing radioiodine via activated charcoal mediums. Analyses of design-basis accidents (DBA) assume a particular ESF charcoal filter adsorption efficiency when calculating offsite and control room operator doses. Guidance on the frequency of, and the test method for, the laboratory testing of charcoal appears in various documents, including Regulatory Guide (RG) 1.52. Guidance on the laboratory test protocol appears in such standards as American National Standards Institute (ANSI) N509; "Nuclear Power Plant Air-Cleaning Units and Components," ANSI N510; "Testing of Nuclear Air Cleaning Systems," Military Specification RDT M 16-1T; "Gas Phase Adsorbents for Trapping Radioactive Iodine and Iodine Components," and an earlier version of ASTM Standard D3803; "Standard Test Method for Nuclear-Grade Activated Carbon." These standards describe a pre-equilibration period, a challenge period, and an elution period as part of the testing of activated charcoal samples, which act to ensure in-plant charcoal mediums can remove the radioiodines according to the analysis expectations.

On June 3, 1999 the Nuclear Regulatory Commission (NRC) published Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal." This letter informed licensees that the NRC had determined that testing nuclear-grade activated charcoal to standards other than ASTM D3803-1989 would not provide assurance for complying with the current licensing basis as it relates to the dose limits of General Design Criterion (GDC) 19. Entergy Operations, Inc. proposed changes to the TSs of all Entergy Nuclear sites in response to GL 99-02 in order to meet ASTM D3803-1989 standards. This proposal was submitted to the NRC in correspondence CNRO-99/00026, dated November 23, 1999. However, the

aforementioned response did not eliminate existing velocity criteria contained within the ANO-1 TSs in favor of the requirements of ASTM D3803-1989. Therefore, this submittal is intended to supplement letter CNRO-99/00026 by proposing the additional changes necessary to ensure velocity requirements are established in accordance with the standards of ASTM D3803-1989.

The ASTM D3803-1989 standard has two additional testing periods that are not required by previous standards: (1) a stabilization period, and (2) the equilibration period. The specific differences between the ASTM D3803-1989 standards and the standards of previous codes, along with a description of the two additional testing periods is described in Entergy Operations, Inc. letter CNRO-99/00026, dated November 23, 1999. For the purposes of this submittal, further discussions will be limited to the test parameter specifications associated with the velocity requirements related to laboratory testing of activated charcoal found in ASTM D3803-1989 as compared with those given in the existing ANO-1 TSs.

DISCUSSION OF CHANGE

Within CNRO-99/00026, discussions were included demonstrating that the Entergy nuclear power plant ventilation systems containing charcoal mediums are designed with face velocities of less than 110% of 0.203 meters/sec (40 feet/minute), as requested by GL 99-02. The following is an excerpt from Attachment 1, page 2 of CNRO-99/00026: "The affected systems for each facility have face velocities of approximately 40 feet/minute, recognizing air flow distribution tolerances of ± 20% are acceptable per RG 1.52." This statement refers to the fact that the system design velocities for the applicable Entergy sites meet the aforementioned face velocity requirement; however, the implication of this statement appeared to allow the retaining of the reference to this ± 20% tolerance within the existing specifications. The intent of the proposed changes, however, were to ensure that all charcoal sample testing would be performed in accordance with the limits contained within ASTM D3803-1989. The face velocity limits found within Table 1 of ASTM D3803-1989 state that the pre-equilibration of the charcoal sample shall be performed with a face velocity of 11.6 to 12.8 meters/minute (38 to 42 feet/minute) for a period of 16 hours. The final 4 hours of the test for the equilibration, challenge, and elution period shall be performed with a face velocity of 11.9 to 12.5 meters/minute (39 to 41 feet/minute). This testing criterion is more stringent than the criteria of ± 20% of system design provided in the existing ANO-1 specifications. Therefore, deletion of the ± 20% of system design reference is appropriate.

Both Specifications 3.13.1.b and 3.15.1.b of the ANO-1 TSs state that testing is to be performed at a velocity within ± 20% of system design. A system designed at a face velocity of 40 feet/minute would then have it's charcoal medium tested at a face velocity of 32 to 48 feet/minute. Since this is in excess of the tolerances allowed by ASTM D3803-1989, ANO-1 proposes the deletion of these statements from within the aforementioned specifications. The attached TS pages and markups include those changes proposed by letter CNRO-99/00026 for completeness. The attached pages supercede the previous ANO-1 related pages of the CNRO-99/00026 submittal. As noted on the attached affected TS pages, reference to the

ASTM D3803-1989 code is made within the specifications; therefore, the addition of the specific acceptance criteria (11.6 to 12.8 meters/minute) found within ASTM D3803-1989 is not proposed.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

Entergy Operations, Inc. is proposing that the Arkansas Nuclear One, Unit 1 (ANO-1) Operating Licenses be amended to delete current Technical Specification (TS) references to system design velocity criteria that are associated with the laboratory testing of activated charcoal within safety-related ventilation systems. The existing face velocity criteria contained within the associated ANO-1 specifications are limited by those found within the criteria of American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon." The Nuclear Regulatory Commission's (NRC) Generic Letter (GL) 99-02 required licensees to comply with the requirements of ASTM D3803-1989 or an approved equivalent thereof. Therefore, the existing velocity criteria of ± 20% of system design (equating to a face velocity of ~40 feet/minute, ± 20%) is proposed for deletion from the associated ANO-1 TSs in favor of the more restrictive criteria of ASTM D3803-1989 (± 5% and ± 2.5% of 40 feet/minute). The affected ANO-1 specifications are presently proposed for modification under Entergy Operations, Inc. submittal CNRO-99/00026, dated November 23, 1999, in which reference to the ASTM D3803-1989 code is added to the affected specifications. Because of this reference, the criterion of ASTM D3808-1989 is not proposed to be included in the revision to the specifications and are maintained within the referenced ASTM D3803-1989 standard.

An evaluation of the proposed changes 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.

Deleting portions of applicable ANO-1 TSs that reference system design velocity criteria for activated charcoal medium testing requires no physical change to plant design. NRC GL 99-02, in support of the ASTM D3803-1989 standard, requires licensees to utilize charcoal testing methods that will ensure the current license basis, as it relates to General Design Criterion (GDC) 19, is maintained. The existing criterion within the affected ANO-1 TSs is less restrictive than that of ASTM D3803-1989 standard and, therefore, is being proposed for deletion. The testing of charcoal mediums has no impact on the probability of an accident occurring. However, the charcoal mediums do act to reduce radioiodines released to the environment during and following an accident. Testing the charcoal mediums to a more restrictive standard, however, does not increase the consequences of an accident since such testing ensures the current analyses remain valid.

Therefore, the proposed changes do 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.

As stated previously, the proposed changes to the ANO-1 TSs do not result in any physical change to plant design, nor does the testing of charcoal mediums act to create a new or different accident than that previously analyzed. The existing criterion within the affected ANO-1 TSs is less restrictive than that of ASTM D3803-1989 standard and, therefore, is being proposed for deletion. Testing criteria governing the operability of charcoal mediums is not considered an accident initiator of new, different, or previously analyzed accidents. The charcoal mediums act solely to reduce radioiodines released to the environment during and following accident scenarios.

Therefore, the proposed changes do 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.

Testing of charcoal mediums to more restrictive criteria acts to better ensure that these mediums will perform their design function during and following accidents that result in a release of radioiodines. No reduction in the margin to safety can be construed based on the new testing criteria. The charcoal mediums will continue to remove radioiodines as originally designed and approved by the NRC during and following accidents involving radioactive release.

Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Therefore, based on the reasoning presented above and the previous discussion of the amendment request, Entergy Operations, Inc. has determined that the requested changes do not involve a significant hazards consideration.

ENVIRONMENTAL IMPACT EVALUATION

10 CFR 51.22(c) provides criteria for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration, (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released off-site, or (3) result in a significant increase in individual or cumulative occupational radiation exposure. Entergy Operations, Inc. has reviewed this license amendment and has determined that it meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the proposed license amendment. The bases for this determination is as follows:

1. The proposed license amendment does not involve a significant hazards consideration as described previously in the evaluation.

2. As discussed in the significant hazards evaluation, the proposed license amendment does not result in a significant change or significant increase in the radiological doses for any Design Based Accident. The proposed license amendment does not result in a significant change in the types or a significant increase in the amounts of any effluents that may be released off-site.

3. The proposed license amendment does not result in a significant increase to the individual or cumulative occupational radiation exposure because this does not modify the method of operation of systems and components necessary to prevent a radioactive release.

PROPOSED ANO-1 TECHNICAL SPECIFICATION CHANGES

3.13 PENETRATION ROOM VENTILATION SYSTEM

Applicability

Applies to the operability of the penetration room ventilation system.

Objective

To ensure that the penetration room ventilation system will perform within acceptable levels of efficiency and reliability.

Specification

3.13.1 Two independent circuits of the penetration room ventilation system shall be operable whenever reactor building integrity is required with the following performance capabilities:

a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flow (± 10%) on HEPA filters and charcoal adsorber banks shall show ≥ 99% DOP removal and ≥ 99% halogenated hydrocarbon removal.

b. The results of laboratory carbon sample analysis from the charcoal adsorber banks shall show the methyl iodide penetration less than 5.0% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 95%.

c. Fans shall be shown to operate within ± 10% of design flow.

d. The pressure drop across the combined HEPA filters and charcoal adsorber banks shall be less than 6 inches of water at system design flow rate (± 10%).

e. Air distribution shall be uniform within ± 20% across HEPA filters and charcoal adsorbers when tested initially and after any maintenance or testing that could affect the air distribution within the penetration room ventilation system.

f. Each circuit of the system shall be capable of automatic initiation.

3.13.2 If one circuit of the penetration room ventilation system is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding seven days provided that during such seven days all active components of the other circuit shall be operable.

3.13.3 If the requirements of Specifications 3.13.1 and 3.13.2 cannot be met, the reactor shall be placed in the cold shutdown condition within 36 hours.

3.15 FUEL HANDLING AREA VENTILATION SYSTEM

Applicability

Applies to the operability of the fuel handling area ventilation system.

Objective

To ensure that the fuel handling area ventilation system will perform within acceptable levels of efficiency and reliability.

Specification

3.15.1 The fuel handling area ventilation system shall be in operation whenever irradiated fuel handling operations are in progress in the fuel handling area of the auxiliary building and shall have the following performance capabilities:

a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows (±10%) on HEPA filters and charcoal adsorber banks shall show ≥ 99% DOP removal and ≥ 99% halogenated hydrocarbon removal.

b. The results of laboratory carbon sample analysis shall show the methyl iodide penetration less than 5.0% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 95%.

c. Fans shall be shown to operate within ±10% design flow.

d. The pressure drop across the combined HEPA filters and charcoal adsorber banks shall be less than 6 inches of water at system design flow rate (±10%).

e. Air distribution shall be uniform within ±20% across HEPA filters and charcoal adsorbers when tested initially and after any maintenance or testing that could affect the air distribution within the fuel handling area ventilation system.

3.15.2 If the requirements of Specification 3.15.1 cannot be met, irradiated fuel movement shall not be started (any irradiated fuel assembly movement in progress may be completed). The provisions of Specification 3.0.3 are not applicable.

Bases

The fuel handling area ventilation system is designed to filter the auxiliary building atmosphere during fuel handling operations to limit the release of activity should a fuel handling accident occur. The system consists of one circuit containing two exhaust fans and a filter train. The fans are redundant and only one is required to be operating. The filter train consists of a prefilter, a HEPA filter and a charcoal adsorber in series.

MARKUP OF CURRENT ANO-1 TECHNICAL SPECIFICATIONS

(FOR INFO ONLY)

3.13 PENETRATION ROOM VENTILATION SYSTEM

Applicability

Applies to the operability of the penetration room ventilation system.

Objective

To ensure that the penetration room ventilation system will perform within acceptable levels of efficiency and reliability.

Specification

3.13.1 Two independent circuits of the penetration room ventilation system shall be operable whenever reactor building integrity is required with the following performance capabilities:

a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flow (± 10%) on HEPA filters and charcoal adsorber banks shall show ≥ 99% DOP removal and ≥ 99% halogenated hydrocarbon removal.

b. The results of laboratory carbon sample analysis from the charcoal adsorber banks shall show ~~≥ 90% radioactive methyl iodide removal~~ the methyl iodide penetration less than 5.0% ~~at velocity within ± 20% of system design, 0.15 to 0.5 mg/m^3 inlet methyl iodide concentration, ≥ 95% R.H. and ≥ 190F~~ when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 95%.

c. Fans shall be shown to operate within ± 10% of design flow.

d. The pressure drop across the combined HEPA filters and charcoal adsorber banks shall be less than 6 inches of water at system design flow rate (± 10%).

e. Air distribution shall be uniform within ± 20% across HEPA filters and charcoal adsorbers when tested initially and after any maintenance or testing that could affect the air distribution within the penetration room ventilation system.

f. Each circuit of the system shall be capable of automatic initiation.

3.13.2 If one circuit of the penetration room ventilation system is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding seven days provided that during such seven days all active components of the other circuit shall be operable.

3.13.3 If the requirements of Specifications 3.13.1 and 3.13.2 cannot be met, the reactor shall be placed in the cold shutdown condition within 36 hours.

3.15 FUEL HANDLING AREA VENTILATION SYSTEM

Applicability

Applies to the operability of the fuel handling area ventilation system.

Objective

To ensure that the fuel handling area ventilation system will perform within acceptable levels of efficiency and reliability.

Specification

3.15.1 The fuel handling area ventilation system shall be in operation whenever irradiated fuel handling operations are in progress in the fuel handling area of the auxiliary building and shall have the following performance capabilities:

a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows (±10%) on HEPA filters and charcoal adsorber banks shall show ≥ 99% DOP removal and ≥ 99% halogenated hydrocarbon removal.

b. The results of laboratory carbon sample analysis shall show ~~≥ 90% radioactive methyl iodide removal~~ the methyl iodide penetration less than 5.0% ~~at a velocity within ±20% of system design, 0.05 to 0.15 mg/m³ inlet methyl iodide concentration, ≥ 70% R.H. and ≥ 125F~~ when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 95%.

c. Fans shall be shown to operate within ±10% design flow.

d. The pressure drop across the combined HEPA filters and charcoal adsorber banks shall be less than 6 inches of water at system design flow rate (±10%).

e. Air distribution shall be uniform within ±20% across HEPA filters and charcoal adsorbers when tested initially and after any maintenance or testing that could affect the air distribution within the fuel handling area ventilation system.

3.15.2 If the requirements of Specification 3.15.1 cannot be met, irradiated fuel movement shall not be started (any irradiated fuel assembly movement in progress may be completed). The provisions of Specification 3.0.3 are not applicable.

Bases

The fuel handling area ventilation system is designed to filter the auxiliary building atmosphere during fuel handling operations to limit the release of activity should a fuel handling accident occur. The system consists of one circuit containing two exhaust fans and a filter train. The fans are redundant and only one is required to be operating. The filter train consists of a prefilter, a HEPA filter and a charcoal adsorber in series.