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1CAN100704

October 22, 2007

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: License Amendment Request
Technical Specification Changes For Control Room Envelope Habitability in Accordance With TSTF-448, Revision 3, Using the Consolidated Line Item Improvement Process
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

References:

1. Entergy letter to NRC dated February 14, 2007, Supplemental Response to GL 2003-01 Regarding Control Room Habitability, (0CAN020701)

2. Entergy letter to NRC dated October 22, 2007, Technical Specification Changes and Analyses Relating to Use of Alternate Source Term (1CAN100703)

3. Entergy letter to NRC dated October 22, 2007, Technical Specification Changes For Control Room Envelope Habitability in Accordance With TSTF-448, Revision 3, Using the Consolidated Line Item Improvement Process (ANO-2) (2CAN100702)

Dear Sir or Madam:

In accordance with the provisions of 10 CFR 50.90, Entergy Operations, Inc. (Entergy) is submitting a request for an amendment to the Technical Specifications (TS) for Arkansas Nuclear One, Unit 1 (ANO-1). The proposed amendment would modify TS requirements related to control room envelope habitability in accordance with Technical Specification Task Force (TSTF)-448, Revision 3, using the consolidated line item improvement process (CLIIP). Entergy committed to submit a proposal to adopt TSTF-448 and retire current compensatory measures relating to control room habitability in letter dated February 14, 2007 (Reference 1).

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Attachment 1 provides a description of the proposed changes, the requested confirmation of applicability, and plant specific verifications. Attachment 2 provides the existing TS pages marked up to show the proposed changes. Attachment 3 provides a summary of the regulatory commitments made in this submittal. Attachment 4 provides existing TS Bases pages marked up to show the proposed changes.

Revised (clean) TS pages are not included in this submittal because some of the pages are impacted by other ANO submittals currently under NRC review. Revised TS pages will be forwarded at such time that the NRC deems necessary to complete approval of this proposed amendment.

In support of this amendment, Entergy is proposing the use of an alternate source term (AST) for ANO-1. The analyses and justifications for AST use are included under separate cover (Reference 2). In addition, because the ANO-1 and Arkansas Nuclear One, Unit 2 (ANO-2) control rooms are supported by the same control room envelope and emergency ventilation systems, Entergy has submitted proposed TS changes adopting TSTF-448 for ANO-2 (Reference 3). NRC approval of TSTF-448, Revision 3, should therefore be coupled with NRC acceptance/approval of the ANO-1 AST submittal and the ANO-2 TSTF-448 submittal.

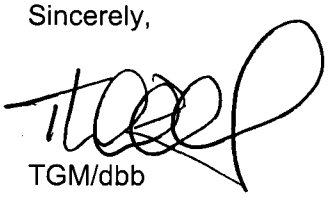
The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that the change involves no significant hazards consideration. The bases for these determinations are included in Attachment 1.

Entergy requests approval of the proposed amendment by July 1, 2008, concurrent with NRC acceptance/approval of the proposed ANO-1 AST application (Reference 2) and the ANO-2 TSTF-448 application (Reference 3). Once approved, the amendment shall be implemented within 60 days. Although this request is neither exigent nor emergency, your prompt review is requested.

If you have any questions or require additional information, please contact David Bice at 479-858-5338.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 22, 2007.

Sincerely,



TGM/dbb

Attachments:
1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. List of Regulatory Commitments
4. Proposed Technical Specification Bases Changes (mark-up)

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Attachment 1

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Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License DPR-51 for Arkansas Nuclear One, Unit 1 (ANO-1).

The proposed amendment would modify Technical Specification (TS) requirements related to control room envelope habitability (CREH) in TS 3.7.9, Control Room Emergency Ventilation System CREVS, and would establish a CREH program in TS Section 5.5, Administrative Controls – Programs and Manuals.

The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification (STS) change TSTF-448, Revision 3. The availability of this TS improvement was published in the Federal Register on January 17, 2007, as part of the consolidated line item improvement process (CLIIP).

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Entergy Operations, Inc. (Entergy) has reviewed the safety evaluation dated January 17, 2007, as part of the CLIIP. This review included a review of the NRC staff's evaluation, as well as the supporting information provided to support TSTF–448. Entergy has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to ANO-1 and justify this amendment for the incorporation of the changes to the ANO-1 TS.

2.2 Optional Changes and Variations

Entergy is not proposing any variations or deviations from the TS changes described in the TSTF–448, Revision 3, or the applicable parts of the NRC staff's model safety evaluation (SE) dated January 17, 2007, except for a minor adjustment in the allowable time before performing the next surveillance tests. The previous tracer gas and pressure testing surveillances were performed on November 1, 2001. By the time TSTF-448 is approved for ANO-1, more than 6 years will have passed since the initial testing, but possibly not 6 years plus 15 months as noted in the NRC model application. In order to permit one starting date for all future testing and to avoid possibly having to test within weeks of TSTF-448 approval, Entergy requests that the next tracer gas test, periodic assessment, and pressurization test (see Section 2.3, Item 2 below) be performed within 15 months of the date in which TSTF-448 is approved by the NRC for ANO-1. Permitting this variation will have no significant impact on plant or public safety and will help to avoid potential human performance traps associated with tracking various due dates for related testing. SR 3.0.2 will not be applicable to the first performance of these tests.

Section 2.2 of the model application requires the Licensee to identify which evaluations (of the six contained under Section 3.3 of the model SE) is applicable to the proposed adoption of TSTF-448, Revision 3. Entergy has determined that Evaluation 1 is applicable to ANO-1 because the ANO-1 TS include the Limiting Condition for Operation (LCO) Note associated with TSTF-287, Revision 5. In addition, Evaluation 6 is applicable to ANO-1, which permits deletion of pressurization test Surveillance Requirements (SR) from the TS. The outside

makeup air flow limits currently described in SR 3.7.9.4 and SR 3.7.9.5 will be controlled henceforth in station procedures associated with the CREH Program under the requirements of 10 CFR 50.59.

Revised (clean) TS pages are not included in this submittal because some of the pages are impacted by other ANO submittals currently under NRC review.

Attachment 2 contains a markup of the affected TS pages. The addition of a new program for CREH to Section 5 of the TSs resulted in information being moved from one page to the next and, subsequently, the page numbers for unaffected TSs being changed in this section. Therefore, all pages following the new page containing the CREH program requirements are included in Attachment 2, with only the page number in the footer being shown as a change. This is an administrative necessity, has no technical impact on the proposed adoption of TSTF-448, and is not discussed further in this submittal. In addition, TS Section 5.5.11, Ventilation Filter Testing Program (VFTP) pages have incorporated changes currently under review by the NRC and expected to be approved long before the approval of TSTF-448 for ANO-1. The markup pages associated with TS Section 5.5.11 contain an "xxx" placeholder in the footer to illustrate the future amendment number to be added once the proposed changes to the VFTP are approved (Entergy letter to the NRC dated April 24, 2007 (0CAN040701) as supplemented by letter dated August 2, 2007 (0CAN080701)). In addition, the title on the pages in TS Section 5.5, "Administrative Controls," is misspelled and, therefore, corrected, as illustrated on the markup pages.

2.3 License Condition Regarding Initial Performance of New Surveillance and Assessment Requirements

Entergy proposes the following as a license condition to support implementation of the proposed TS changes.

1. Upon implementation of TS amendment adopting TSTF–448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.9.6, in accordance with TS 5.5.5.c.(i), the assessment of CRE habitability as required by Specification 5.5.5.c.(ii), and the measurement of CRE pressure as required by Specification 5.5.5.d, shall be considered met.

2. Following implementation:

   (a) The first performance of SR 3.7.9.6, in accordance with Specification 5.5.5.c.(i), shall be within 15 months of the approval of TSTF-448 for ANO-1. SR 3.0.2 will not be applicable to this first performance.

   (b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.5.c.(ii), shall be within 15 months of the approval of TSTF-448 for ANO-1. SR 3.0.2 will not be applicable to this first performance.

   (c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.5.d, shall be within 15 months of the approval of TSTF-448 for ANO-1. SR 3.0.2 will not be applicable to this first performance.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration

Entergy Operations, Inc. (Entergy) has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register as part of the CLIIP. Entergy has concluded that the proposed NSHCD presented in the Federal Register notice is applicable to Arkansas Nuclear One, Unit 1 (ANO-1) and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

3.2 Commitments

As included in Attachment 4 of this submittal, Entergy will establish the TS Bases for TS 3.7.9, consistent with TSTF 448, Revision 3, as adopted with the applicable license amendment. As a matter of administrative control, Entergy has also included the license conditions described in Section 2.3 above in Attachment 3.

4.0 ENVIRONMENTAL CONSIDERATIONS

Entergy Operations, Inc. (Entergy) has reviewed the environmental evaluation included in the model safety evaluation dated January 17, 2007, as part of the CLIIP. Entergy has concluded that the staff's findings presented in that evaluation are applicable to Arkansas Nuclear One, Unit 2 (ANO-2) and the evaluation is hereby incorporated by reference for this application.

Attachment 2

1CAN100704

Proposed Technical Specification Changes (mark-up)

3.7 PLANT SYSTEMS

3.7.9 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.9 Two CREVS trains shall be OPERABLE.

----------NOTES----------

1. The control room envelope (CRE) boundary may be opened intermittently under administrative controls.

2. One CREVS train shall be capable of automatic actuation.

APPLICABILITY: MODES 1, 2, 3, ~~and 4~~,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREVS train inoperable for reasons other than Condition B.	A.1 Restore CREVS train to OPERABLE status.	7 days
B. ~~Two~~One or more CREVS trains inoperable due to inoperable ~~control room~~CRE boundary in MODES 1, 2, 3, or~~and~~ 4.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.~~1~~3 Restore control room boundary to OPERABLE status.	Immediately 24 hours 90 days
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	D.1 Place OPERABLE CREVS train in emergency recirculation mode. OR D.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
E. Two CREVS trains inoperable during movement of irradiated fuel assemblies. OR One or more CREVS trains inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies.	E.1 Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREVS trains inoperable ~~during~~in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Operate each CREVS train for ≥ 15 minutes.	31 days
SR 3.7.9.2	Perform required CREVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.9.3	Verify the CREVS automatically isolates the Control Room and switches into a recirculation mode of operation on an actual or simulated actuation signal.	18 months

SURVEILLANCE		FREQUENCY
SR 3.7.9.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.~~Verify VSF-9 makeup flow rate is ≥ 300 and ≤ 366 cfm when supplying the control room with outside air.~~	In accordance with the Control Room Envelope Habitability Program.~~18 months~~
~~SR 3.7.9.5~~	~~Verify 2VSF-9 makeup flow rate is ≥ 418.5 and ≤ 511.5 cfm when supplying the control room with outside air.~~	~~18 months~~

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.5 ~~(Not Used).~~Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Ventilation System (CREVS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREVS, operating at the flow rate required by the VFTP, at a Frequency of 18 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 18 month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.6 (Not Used).

5.5.7 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel. Surface and volumetric examination of the reactor coolant pump flywheels will be conducted coincident with refueling or maintenance shutdowns such that during 10 year intervals all four reactor coolant pump flywheels will be examined. Such examinations will be performed to the extent possible through the access ports, i.e., those areas of the flywheel accessible without motor disassembly. The surface and volumetric examination may be accomplished by Acoustic Emission Examination as an initial examination method. Should the results of the Acoustic Emission Examination indicate that additional examination is necessary to ensure the structural integrity of the flywheel, then other appropriate NDE methods will be performed on the area of concern.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Reactor Coolant Pump Flywheel Inspection Program inspection frequencies.

5.5.8 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as follows:

ASME Code terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Monthly	At least once per 31 days
Every 6 weeks	At least once per 42 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any TS.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following provisions:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged to confirm that the performance criteria are being met.

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down and all anticipated transients included in the design specification) and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary to secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary to secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 1 gpm.

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

c. Provisions for SG tube repair criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube repair criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. An assessment of degradation shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG replacement.

2. Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever is less). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.10 Secondary Water Chemistry

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables;

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points;

d. Procedures for the recording and management of data;

e. Procedures defining corrective actions for all off control point chemistry conditions; and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events required to initiate corrective action.

5.5.11 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safeguards (ES) ventilation systems filters at the frequencies specified in Regulatory Guide 1.52, Revision 2. The VFTP is applicable to the Penetration Room Ventilation System (PRVS) and the Control Room Emergency Ventilation System (CREVS).

a. Demonstrate that an inplace cold DOP test of the high efficiency particulate (HEPA) filters shows:

   1. ≥ 99% DOP removal for the PRVS when tested at the system design flowrate of 1800 scfm ± 10%; and

   2. ≥ 99.95% DOP removal for the CREVS when tested in accordance with Regulatory Guide 1.52, Revision 2, at the system design flowrate of 2000 cfm ± 10%.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

b. Demonstrate that an inplace halogenated hydrocarbon test of the charcoal adsorbers shows:

1. ≥ 99% halogenated hydrocarbon removal for the PRVS when tested at the system design flowrate of 1800 cfm ± 10%; and

2. ≥ 99.95% halogenated hydrocarbon removal for the CREVS when tested in accordance with Regulatory Guide 1.52, Revision 2, at the system design flowrate of 2000 cfm ± 10%.

c. Demonstrate that a laboratory test of a sample of the charcoal adsorber meets the laboratory testing criteria of ASTM D3803-1989 when tested at 30°C and 95% relative humidity for a methyl iodide penetration of:

1. < 5% for the PRVS;

2. when obtained as described in Regulatory Guide 1.52, Revision 2, for CREVS

i. ≤ 2.5% for 2 inch charcoal adsorber beds; and

ii. ≤ 0.5% for 4 inch charcoal adsorber beds.

d. Demonstrate for the PRVS and CREVS, that the pressure drop across the combined HEPA filters, other filters in the system, and the charcoal adsorbers is < 6 inches of water when tested at the following system design flowrates ± 10%:

PRVS	1800 cfm
CREVS	2000 cfm

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.12 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Waste Gas System, the quantity of radioactivity contained in gas storage tanks, and the quantity of radioactivity contained in unprotected temporary outdoor liquid storage tanks. The gaseous radioactivity quantities shall be determined following the methodology in Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure." The liquid radwaste quantities shall be determined in accordance with the ODCM.

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the Waste Gas System and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion);

b. A surveillance program to ensure that the quantity of radioactivity contained in each gas storage tank is less than the amount that would result in a whole body exposure of $\geq$ 0.5 rem to any individual in an unrestricted area, in the event of an uncontrolled release of the tanks' contents;

c. A surveillance program to ensure that the quantity of radioactivity contained in all temporary outdoor liquid radwaste tanks: 1) that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents; and 2) that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is less than the amount that would result in concentrations equal to the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.13 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. an API gravity or an absolute specific gravity within limits,

   2. a flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. water and sediment within limits;

b. Within 31 days following addition of new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a. above, are within limits for ASTM 2D fuel oil;

c. Total particulate concentration of the fuel oil is $\leq$ 10 mg/l when tested every 31 days based on ASTM D-2276, Method A-2 or A-3; and

d. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program surveillance Frequencies.

5.5.14 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:

   1. A change in the TS incorporated in the license; or

   2. A change to the updated SAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

   Proposed changes that do meet these criteria shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the SAR.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.15 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, and assuming no concurrent loss of offsite power or loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable; or

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable; or

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.16 Reactor Building Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the reactor building as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, except that the next Type A test performed after the April 16, 1992 Type A test shall be performed no later than April 15, 2007.

In addition, the reactor building purge supply and exhaust isolation valves shall be leakage rate tested once prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days.

The peak calculated reactor building internal pressure for the design basis loss of coolant accident, P_a, is 54 psig.

The maximum allowable reactor building leakage rate, L_a, shall be 0.20% of containment air weight per day at P_a.

Reactor Building leakage rate acceptance criteria is $\leq 1.0L_a$. During the first unit startup following each test performed in accordance with this program, the leakage rate acceptance criteria are $< 0.60L_a$ for the Type B and Type C tests and $< 0.75L_a$ for Type A tests.

The provisions of SR 3.0.2 do not apply to the test frequencies specified in the Reactor Building Leakage Rate Testing Program.

The provisions of SR 3.0.3 are applicable to the Reactor Building Leakage Rate Testing Program.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.17 Metamic Coupon Sampling Program

A coupon surveillance program will be implemented to maintain surveillance of the Metamic absorber material under the radiation, chemical, and thermal environment of the SFP. The purpose of the program is to establish the following:

- Coupons will be examined on a two year basis for the first three intervals with the first coupon retrieved for inspection being on or before February 2009 and thereafter at increasing intervals over the service life of the inserts.
- Measurements to be performed at each inspection will be as follows:
  - A) Physical observations of the surface appearance to detect pitting, swelling or other degradation,
  - B) Length, width, and thickness measurements to monitor for bulging and swelling
  - C) Weight and density to monitor for material loss, and
  - D) Neutron attenuation to confirm the B-10 concentration or destructive chemical testing to determine the boron content.
- The provisions of SR 3.0.2 are applicable to the Metamic Coupon Sampling Program.
- The provisions of SR 3.0.3 are not applicable to the Metamic Coupon Sampling Program.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

5.6.1 DELETED

5.6.2 Annual Radiological Environmental Operating Report

----------NOTE----------
A single submittal may be made for ANO. The submittal should combine sections common to both units.

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

5.6.2 Annual Radiological Environmental Operating Report (continued)

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

5.6.3 Radioactive Effluent Release Report

----------NOTE----------
A single submittal may be made for ANO. The submittal shall combine sections common to both units. The submittal shall specify the releases of radioactive material from each unit.

The Radioactive Effluent Release Report covering the operation of the unit in the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6.4 DELETED

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

2.1.1 Variable Low RCS Pressure – Temperature Protective Limits
3.1.1 SHUTDOWN MARGIN (SDM)
3.1.8 PHYSICS TESTS Exceptions – MODE 1
3.1.9 PHYSICS TEST Exceptions - MODE 2
3.2.1 Regulating Rod Insertion Limits
3.2.2 AXIAL POWER SHAPING RODS (APSR) Insertion Limits
3.2.3 AXIAL POWER IMBALANCE Operating Limits
3.2.4 QUADRANT POWER TILT (QPT)
3.2.5 Power Peaking
3.3.1 Reactor Protection System (RPS) Instrumentation
3.4.1 RCS Pressure, Temperature, and Flow DNB limits
3.4.4 RCS Loops – MODES 1 and 2
3.9.1 Boron Concentration

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

Babcock & Wilcox Topical Report BAW-10179-A, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses" (the approved revision at the time the reload analyses are performed). The approved revision number shall be identified in the COLR.

Entergy Topical Report ENEAD-01-P, "Qualification of Reactor Physics Methods for the Pressurized Water Reactors of the Entergy System" (the approved revision at the time the reload analyses are performed). The approved revision number shall be identified in the COLR.

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling System (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

5.6.6 Reactor Building Inspection Report

Any degradation exceeding the acceptance criteria of the containment structure detected during the tests required by the Containment Inspection Program shall undergo an engineering evaluation within 60 days of the completion of the inspection surveillance. The results of the engineering evaluation shall be reported to the NRC within an additional 30 days of the time the evaluation is completed. The report shall include the cause of the condition that does not meet the acceptance criteria, the applicability of the conditions to the other unit, the acceptability of the concrete containment without repair of the item, whether or not repair or replacement is required and, if required, the extent, method, and completion date of necessary repairs, and the extent, nature, and frequency of additional examinations.

5.6.7 Steam Generator Tube Inspection Reports

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9, Steam Generator (SG) Program. The report shall include:

a. The scope of inspections performed on each SG,

b. Active degradation mechanisms found,

c. Nondestructive examination techniques utilized for each degradation mechanism,

d. Location, orientation (if linear), and measured sizes (if available) of service induced indications,

e. Number of tubes plugged during the inspection outage for each active degradation mechanism,

f. Total number and percentage of tubes plugged to date,

g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation

a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.

b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP), or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual or group entering such an area shall possess:

1. A radiation monitoring device that continuously displays radiation dose rates in the area; or

2. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or

3. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or

4. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

   (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

   (ii) Be under the surveillance as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

5.7.2 <u>High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation</u>

a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry, and, in addition:

   1. All such door and gate keys shall be maintained under the administrative control of the shift manager, radiation protection manager, or his or her designee.

   2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.

b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual or group entering such an area shall possess:

1. A radiation monitoring device that continuously integrates the radiation rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or

2. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or

3. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

(i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

(ii) Be under the surveillance as specified in the RWP, or equivalent, while in the area by means of closed circuit television, or personnel qualified in radiation protection procedures responsible for controlling personnel radiation exposure in the area and with the means to communicate with individuals in the area who are covered by such surveillance.

4. In those cases where options (2) and (3), above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

f. Such individual areas that are within a larger area where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.

Attachment 3

1CAN100704

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Entergy will establish the Technical Specification (TS) Bases for TS 3.7.9, consistent with TSTF 448, Revision 3, as adopted with the applicable license amendment.	X		To be implemented with amendment
The first performance of SR 3.7.9.6, in accordance with Specification 5.5.5.c.(i), shall be within 15 months of the approval of TSTF-448 for ANO-1. SR 3.0.2 will not be applicable to this first performance.	X		Within 15 months following amendment approval
The first performance of the periodic assessment of CRE habitability, Specification 5.5.5.c.(ii), shall be within 15 months of the approval of TSTF-448 for ANO-1. SR 3.0.2 will not be applicable to this first performance.	X		Within 15 months following amendment approval
The first performance of the periodic measurement of CRE pressure, Specification 5.5.5.d, shall be within 15 months of the approval of TSTF-448 for ANO-1. SR 3.0.2 will not be applicable to this first performance.	X		Within 15 months following amendment approval

Attachment 4

1CAN100704

Proposed Technical Specification Bases Changes (mark-up)

B 3.7 PLANT SYSTEMS

B 3.7.9 Control Room Emergency Ventilation System (CREVS)

BASES

BACKGROUND

The CREVS is a shared system which provides a protected environment from which occupants~~operators~~ can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke.

The CREVS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) and a CRE boundary that limits the inleakage of unfiltered air~~, fan and filter assemblies~~. Each CREVS~~fan circulates control room air through a filter~~ train consists~~ing~~ of a roughing filter, a high efficiency particulate air (HEPA) filter, ~~and~~ a charcoal filter~~adsorber~~ for removal of gaseous activity (principally iodines), and a fan. For control room pressurization, each train provides additional outside air filtered through a four inch bed, or equivalent, of charcoal adsorber. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system.

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CREVS is an emergency system. Upon receipt of a unit specific high radiation signal, the CRE~~control room envelope~~ is isolated, the associated unit's normal control room ventilation system is shutdown, and the associated unit's CREVS is started. The CRE~~control room envelope~~ is maintained sufficiently leak tight to minimize unfiltered air inleakage. The CREVS operation is discussed in the SAR, Section 9.7 (Ref. 1).

The CREVS is designed to maintain a habitable environment in the CRE~~control room~~ for 30 days of continuous occupancy after a Design Basis Accident (DBA), without exceeding a 5 rem total effective dose equivalent (TEDE)~~whole body dose or its equivalent to any part of the body~~.

APPLICABLE SAFETY ANALYSES

The shared CREVS components are arranged in two safety related ventilation trains, which ensure an adequate supply of filtered air to all areas requiring access. The CREVS provides airborne radiological protection for the CRE occupants~~control room operators~~ for the design basis ~~loss of coolant~~ accident fission product release and for a fuel handling accident.

The CREVS provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release (Ref. 1). The evaluation of a smoke challenge demonstrates that it will not result in the inability of the CRE occupants to control the reactor from the control room (Ref. 1).

The worst case single active failure of a CREVS component, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

In MODES 1 and 2, and during the movement of irradiated fuel assemblies, the CREVS satisfies Criterion 3 of 10 CFR 50.36 ~~(Ref. 2)~~. In MODES 3 and 4, the CREVS satisfies Criterion 4 of 10 CFR 50.36.

LCO

Two CREVS trains are required to be OPERABLE to ensure that at least one is available if a single active failure disables the other train. Total system failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of 5 rem total effective dose equivalent (TEDE) to the CRE occupants~~control room operators~~ in the event of a large radioactive release.

Each CREVS train is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. For a CREVS train to be considered OPERABLE, the CREVS train must include the associated:

a. OPERABLE fan;

b. OPERABLE HEPA filter and charcoal adsorber; and

c. OPERABLE ductwork and dampers sufficient to maintain air circulation and provide adequate makeup air flow.

In order for the CREVS trains to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke. ~~In addition, the control room envelope, including the integrity of the walls, floors, ceilings, ductwork, and access doors, must be maintained within the assumptions of the design analysis.~~

LCO (continued)

The LCO is modified by two Notes. Note 1 allows the CRE~~control room~~ boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, conduits, cable penetrations, and access panels. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the CRE~~control room~~. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE~~control room~~ isolation is indicated. Note 2 requires that one CREVS train be capable of automatic actuation. The other train may be started manually, on failure of the first train. If the control room is isolated and operating in the emergency recirculation mode, automatic actuation of the CREVS train is no longer required.

APPLICABILITY

In MODES 1, 2, 3, and 4, the CREVS must be OPERABLE to ensure that the control room will remain habitable during and following a DBA.

During movement of irradiated fuel assemblies, the CREVS must be OPERABLE to cope with a release due to a fuel handling accident.

ACTIONS

A.1

With one CREVS train inoperable due to other than the loss of capability for automatic actuation on a high radiation signal or for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREVS train is adequate to perform the CRE occupant~~control room radiation~~ protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREVS train could result in loss of CREVS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability. If automatic actuation on high radiation is lost, the Conditions and Required Actions of LCO 3.3.16 provide sufficient actions to ensure continued safe operation.

B.1, ~~and~~ B.2, and B.3

~~If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the CREVS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactivity, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address~~

~~these concerns for intentional and unintentional entry into the Condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possible repair, and test most problems with the control room boundary.~~ If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem TEDE), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

ACTIONS (continued)

B.1, B.2, and B.3 (continued)

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

C.1 and C.2

In MODE 1, 2, 3, or 4 if the inoperable CREVS train or the CRE~~control room~~ boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk~~in which the LCO does not apply~~. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 and D.2

During movement of irradiated fuel assemblies, if the Required Action and associated Completion Time of Condition A are not met, the OPERABLE CREVS train must immediately be placed in the emergency recirculation mode. This action ensures that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action D.1 is to immediately suspend movement of irradiated fuel assemblies since this is an activity that could release radioactivity that might require isolation of the CRE~~control room~~. This places the unit in a condition that minimizes the accident risk. This does not preclude movement of fuel to a safe position.

ACTIONS (continued)

E.1

During movement of irradiated fuel assemblies, when two CREVS trains are inoperable or with one or more CREVS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend movement of irradiated fuel assemblies since this is an activity that could result in a release of radioactivity that could enter the CRE~~control room~~. This places the unit in a condition that minimizes the accident risk. This does not preclude movement of fuel to a safe position.

F.1

If both CREVS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable CRE~~control room~~ boundary (i.e., Condition B), the CREVS may not be capable of performing the intended function and a loss of safety function has occurred. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.9.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not severe, testing each train once every month adequately checks this system. This test is conducted on alternating trains semi-monthly by initiating flow through the HEPA filters and charcoal adsorbers. The CREVS is designed without heaters and need only be operated for ≥ 15 minutes to demonstrate the function of the system. The 31 day Frequency is based on the known reliability of the equipment and two train redundancy available.

SR 3.7.9.2

This SR verifies that the required CREVS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal. Specific test F~~f~~requencies and additional information are discussed in detail in the VFTP.

SR 3.7.9.3

This SR verifies that the CREVS automatically isolates the CRE~~Control Room~~ within 10 seconds and switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks on an actual or simulated actuation signal. The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle~~guidance provided in Regulatory Guide 1.52 (Ref. 3)~~.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.9.4 ~~and SR 3.7.9.5~~

~~These SRs verify the ability of the CREVS to provide outside air at a flow rate consistent with their safety function to protect the operator from radiological exposure by minimizing unfiltered air in-leakage in the event of an accident. Many factors must be taken into account to determine the overall expected dose consequences for control room personnel during various off-normal events. The CREVS makeup airflow and filter efficiency are two of the factors that must be considered. Makeup airflow, which is filtered outside air, is drawn into the control room recirculated airflow to pressurize the control room in order to reduce the potential for unfiltered in-leakage. The flow verification ensures that an assumed amount of makeup air is available to account for boundary leak paths. The flowrate verification is consistent with SRP Section 6.4 (Reference 4) for those control rooms having a design makeup rate of ≥ 0.5 volume changes per hour. Due to design variations between the filter trains, the acceptance criteria for each train are different. SR 3.7.9.4 verifies VSF-9 makeup air flow accounting for a separate makeup air filter in the acceptance criteria. SR 3.7.9.5 verifies 2VSF-9 makeup air flow which is based on expected flow rates through the flow path. The Frequency of 18 months is considered adequate to detect any degradation of the outside air flow rate before it is reduced to a point at which sufficient pressurization will not occur.~~

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem TEDE and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 3) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 4). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 5). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

REFERENCES

1. SAR, Section 9.7.

2. ~~10 CFR 50.36~~SAR, Chapter 14.

3. Regulatory Guide 1.196.~~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," Rev. 2, March 1978.~~

4. NEI 99-03, "Control Room Habitability Assessment," June 2001.

5. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694)

46. Standard Review Plan, Section 6.4, "Control Room Habitability System," Rev. 2, July 1981.