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Callaway Plant

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June 7, 2006

U.S. Nuclear Regulatory Commission
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Ladies and Gentlemen: ULNRC-05301

**DOCKET NUMBER 50-483
CALLAWAY PLANT
UNION ELECTRIC COMPANY
PROPOSED REVISION TO
TECHNICAL SPECIFICATION (TS) 3.7.10, "CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)"; TS 3.7.11, "CONTROL ROOM AIR CONDITIONING SYSTEM (CRACS)," AND TS 3.7.13, "EMERGENCY EXHAUST SYSTEM (EES)"
(LICENSE AMENDMENT REQUEST OL-1259)**

Pursuant to 10 CFR 50.90, AmerenUE (Union Electric) hereby requests an amendment to the Facility Operating License (No. NPF-30) for the Callaway plant in order to incorporate proposed changes to the Callaway Technical Specifications. Specifically, AmerenUE proposes to revise Technical Specification (TS) 3.7.10, "Control Room Emergency Ventilation System (CREVS)," and TS 3.7.11, "Control Room Air Conditioning System (CRACS)," by removing a particular Required Action from the Limiting Condition for Operation (LCO) sections of these Technical Specifications. In addition, AmerenUE proposes to revise Technical Specification (TS) 3.7.13, "Emergency Exhaust System (EES)," by incorporating a 7-day Completion Time for restoring an inoperable EES train to operable status during shutdown conditions (i.e., during movement of irradiated fuel assemblies).

Essential information is provided in the attachments to this letter. Attachment 1 provides a detailed description and technical evaluation of the proposed changes, including AmerenUE's determination that the proposed changes involve no significant hazards consideration. Attachment 2 provides the affected, existing TS pages marked-up to show the proposed changes. Attachment 3 provides a copy of the revised TS pages retyped with the proposed changes incorporated (if approved). Attachment 4 provides the affected existing TS Bases pages marked-up to show the associated proposed Bases changes (for information only), and Attachment 5 contains a marked-up page from Callaway's Final Safety Analysis Report (FSAR) indicating what associated changes are being made to that document.

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The Callaway Plant Review Committee and a subcommittee of the Nuclear Safety Review Board have reviewed and approved this amendment application. In addition, it has been determined that this amendment application involves no significant hazards consideration as determined per 10 CFR 50.92, and that pursuant to 10 CFR 51.22(b) no environmental assessment should be required to be prepared in connection with the issuance of this amendment. It is further noted that no regulatory commitments are made or identified in this amendment application.

AmerenUE respectfully requests approval of the proposed license amendment by February 28, 2007, i.e., prior to the next scheduled refueling outage (Refuel 15). Receipt of this amendment is not required to conduct the outage or to restart the unit following the outage. However, implementation of the requested TS changes prior to the outage could allow fuel handling activities to proceed uninterrupted during the outage or could prevent unnecessary delays during the outage, in the event of an unplanned inoperability of a CREVS, CRACS, or EES train during the outage. If approved by February 28, 2007, the amendment would be implemented prior to entry into MODE 6 during Refuel 15.

Pursuant to 10 CFR 50.91(b)(1), AmerenUE is providing the State of Missouri with a copy of this proposed amendment.

If you should have any questions on the above or attached, please contact Dave Shafer at (314) 554-3104 or Tom Elwood at (314) 554-4593.

I declare under penalty of perjury that the foregoing is true and correct.

Very truly yours,

Executed on: June 7, 2006

Keith D. Young

Keith Young
Manager, Regulatory Affairs

TBE/NGS/jdg

Attachments:
1) Evaluation
2) Markup of Technical Specification Pages
3) Retyped Technical Specification Pages
4) Markup of Technical Specification Bases Pages (For information only)
5) Markup of FSAR page

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ULNRC-05301

ATTACHMENT 1

EVALUATION

EVALUATION

1.0 INTRODUCTION

This amendment application involves changes to the Technical Specifications for the control room ventilation system, control room air conditioning system, and the emergency exhaust system, with respect to requirements that are applicable during shutdown conditions, including during the movement of irradiated fuel assemblies. For the control room ventilation and air conditioning systems, AmerenUE proposes to revise Technical Specification (TS) 3.7.10, "Control Room Ventilation Emergency System (CREVS)," and TS 3.7.11, "Control Room Air Conditioning System (CRACS)," by removing a Required Action from each of these Technical Specifications that applies when one of the two required CRACS/CREVS trains is declared inoperable during Mode 5 or Mode 6, or during movement of irradiated fuel assemblies. The Required Action to be removed requires verifying that the OPERABLE CRACS/CREVS train is capable of being powered by an emergency power source.

For the emergency exhaust system, AmerenUE proposes to revise Technical Specification (TS) 3.7.13, "Emergency Exhaust System (EES)," to allow a 7-day Completion Time for restoring an inoperable EES train to OPERABLE status during shutdown conditions (i.e., during movement of irradiated fuel assemblies in the fuel building) prior to the requirement for placing the OPERABLE train in the required mode of operation or suspending movement of irradiated fuel assemblies in the fuel building.

The CRACS, CREVS and EES trains are related with respect to the fact that, for shutdown conditions, these systems are expected to perform their required safety functions in the event of a fuel handling accident (FHA) (in addition to the less limiting event of a waste gas tank rupture). Notwithstanding the fact that an FHA (or waste gas tank rupture) may be postulated to occur during shutdown conditions and that the Applicability of the affected TS requirements is based in part on such an assumption, the current TS requirements to be modified by the proposed changes are overly restrictive and/or inconsistent relative to the regulatory/licensing basis assumed for shutdown conditions and as described in the TS Bases. Approval of the changes proposed for the affected Technical Specifications would have the effect of making the requirements of TS 3.7.10, 3.7.11 and 3.7.13 more consistent with each other and with the intended licensing basis for shutdown conditions. However, since the change proposed for TS 3.7.10 and TS 3.7.11 is considerably different than the change proposed for TS 3.7.13, these changes are addressed separately (albeit concurrently), as follows.

1.1 Change to TS 3.7.10 (CREVS) and TS 3.7.11 (CRACS)

CREVS and CRACS are closely related because they are both part of the control room ventilation system. CREVS, with its two independent, redundant trains for pressurizing, recirculating, and filtering control room air, provides a protected environment for control room operators following an uncontrolled release of radioactivity (such as the postulated release from a fuel handing accident). CRACS, which also consists of two independent and redundant trains (each of which may be associated with the two independent CREVS trains), provides cooling of recirculated control room air and air temperature control for the control room. CRACS is thus a subsystem to CREVS, though these system functions are separately addressed by the Technical Specifications.

Due to the overlapping aspects of CREVS and CRACS, and the dual-train design of each (as part of the overall control room ventilation system design) the Technical Specifications for these systems are structured in a nearly identical manner with regard to how requirements are specified and formatted for these systems with their redundant trains. For example, both Technical Specifications (i.e., TS 3.7.10 and TS 3.7.11) require two trains to be OPERABLE, both have the same Applicability, and both have Conditions and Required Actions that address having one train inoperable as well as for having both trains inoperable.

In particular, Condition A in each of Technical Specifications 3.7.10 and 3.7.11 addresses the condition of having one train inoperable. Associated Required Action A.1 requires restoring the inoperable train to OPERABLE status within the specified Completion Time. In addition, each TS has a Condition and Required Action that addresses the condition of when the Required Action and associated Completion Time of Condition A cannot be met (i.e., when the single inoperable train cannot be restored to OPERABLE status within the required Completion Time) during Mode 5 or 6, or during movement of irradiated fuel assemblies. This is Condition D in TS 3.7.10 and Condition C in TS 3.7.11.

When Condition D of TS 3.7.10 (or Condition C of TS 3.7.11) is entered, either of two pairs of Required Actions may be entered and taken. If the first pair of Required Actions is entered, one of the Required Actions is to place the OPERABLE train in the required mode of operation, while a second Required Action is to verify that the OPERABLE train is capable of being powered by an emergency power source. It is this second Required Action, in particular, that AmerenUE proposes to delete.

The Required Action for verifying that the OPERABLE train is capable of being powered by an emergency power source is not included in the Standard Technical Specifications. This Required Action is a carry-over from the Callaway Technical Specifications that were in place prior to conversion to the Improved Standard Technical Specifications (ISTS) (i.e., NUREG-1431) but which, in this case, were not changed per the STS when the conversion to the ISTS was made. It has since been identified, however, that this Required Action is not consistent with the basis for the ISTS, given that the ISTS (as well as Callaway's Technical Specifications) only require one emergency power source (i.e., emergency diesel generator) to be OPERABLE during shutdown conditions. (ISTS requirements for shutdown conditions are structured on the basis that for events that may be postulated to occur during shutdown conditions, it is not necessary to postulate a single failure concurrent with a loss of all offsite power. This in contrast to the more restrictive TS requirements that generally apply during operating conditions, which are based on protecting against both a loss of offsite power <u>and</u> a single failure (concurrently).

As further explained in Section 3.1, compliance with the Required Action for verifying an emergency power source for the OPERABLE train could present a challenge during a refueling outage if, for example, with only the "A" emergency diesel generator OPERABLE, the "A" CREVS or CRACS train unexpectedly became inoperable. This would result in a condition in which the subject Required Action could not be met for the "B" train, despite the fact that the power source requirements of the Technical Specifications are met. AmerenUE is therefore proposing to delete this unnecessary additional Action.

1.2 Change to TS 3.7.13 (EES)

In the event of a fuel handling accident (FHA), the EES at Callaway is designed to collect and process the airborne particulates released into the fuel building. The system consists of two independent, redundant trains, each containing a heater, prefilter, high efficiency particulate air (HEPA) filter bank, activated charcoal adsorber section, and fan. Similar to the TS requirements for CREVS and CRACS, TS 3.7.13 requires both EES trains to be OPERABLE to ensure that at least one train is available, assuming a single failure that disables the other train. TS 3.7.13 is applicable during Modes 1, 2, 3, and 4, and during movement of irradiated fuel assemblies in the fuel building.

The Conditions and Required Actions of TS 3.7.13 (EES) are structured similar to those of TS 3.7.10 (CREVS) and TS 3.7.11 (CRACS) except that, for the EES, there are two Conditions under TS 3.7.13 for addressing the inoperability of one EES train. Entry into one or the other Condition is dependent on the applicable plant Mode or condition. Specifically, Condition A is entered for a single inoperable train during Modes 1, 2, 3, and 4, whereas Condition D is entered for a single inoperable train during movement of irradiated fuel assemblies in the fuel building. The change proposed for TS 3.7.13 concerns the Required Actions for these Conditions.

For entry into Condition A, Required Action A.1 requires restoring the inoperable EES train to OPERABLE status within 7 days (the specified Completion Time). For entry to Condition D, there are two Required Actions specified such that one or the other must be taken (since an "OR" is placed between these Actions). Required Action D.1 requires placing the OPERABLE EES train in a required mode of operation; Required Action D.2 requires suspending the movement of irradiated fuel assemblies in the fuel building. The Completion Time for either of these Required Actions is "Immediately". There is no Required Action and Completion Time for restoring the inoperable EES train to OPERABLE status before either Required Action D.1 or Required Action D.2 must be taken.

AmerenUE proposes to revise the Required Actions of TS 3.7.13 such that with one EES train inoperable during the movement of irradiated fuel assemblies in the fuel building, a Completion Time of 7 days will be allowed for restoring the inoperable EES train to OPERABLE status before entry into Condition D is required. With this change, revised TS 3.7.13 for the EES would be more consistent with the STS (NUREG-1431) for such a system.

1.3 Change to FSAR

In connection with the proposed TS changes, a change to FSAR Section 3.1.2 will be made. As noted in Section 1.1, part of the reason for requesting the changes to TS 3.7.10 and TS 3.7.11 is that the Required Actions to be deleted are overly restrictive relative to the provisions of the Technical Specifications for electrical power sources and support for shutdown conditions. As further noted in Section 1.1, the basis for the electrical TS requirements during shutdown conditions is that it is not necessary to postulate a single failure concurrent with a loss of all offsite power. The change to be made to the FSAR will incorporate a statement of that basis into Section 3.1.2 (which provides a general description of what assumptions are made in the accident analyses for postulated events).

2.0 DESCRIPTION OF PROPOSED TS CHANGES

The changes proposed for TS 3.7.10 and TS 3.7.11, as well as for TS 3.7.13, are described and explained in greater detail as follows.

2.1 Changes to TS 3.7.10 and TS 3.7.11

As described in Section 1.1, when a single CREVS and/or CRACS train is declared inoperable during Mode 5 or 6, or during movement of irradiated fuel assemblies, Condition D is entered under TS 3.7.10 and/or Condition C is entered under TS 3.7.11. When either of these Conditions is entered, either of two pairs of Required Actions may be entered and taken. (For TS 3.7.10, Required Actions D.1.1 and D.1.2 OR D.2.1 and D.2.2 are entered, and for TS 3.7.11, Required Actions C.1.1 and C.1.2 OR C.2.1 and C.2.2 are entered.) The first pair of Required Actions that may be entered concerns placing the remaining, OPERABLE train in the required mode of operation, thus providing assurance of the safety function in the event of a real demand. Alternatively the second pair of Required Actions provides Actions for precluding the occurrence of an event that could require the CRACS/CREVS safety function by requiring the immediate suspension of CORE ALTERATIONS and movement of irradiated fuel assemblies.

In particular, if the first pair of Required Actions is entered under TS 3.7.10, Required Action D.1.1 requires placing the OPERABLE CREVS train in the required mode of operation [i.e., CRVIS mode (explained in Section 3.0)], and Required Action D.1.2 requires verifying that the OPERABLE CREVS train is capable of being powered by an emergency power source. Similarly, Required Actions C.1.1 and C.1.2 under TS 3.7.11 require placing the OPERABLE CRACS train in operation and verifying the OPERABLE CRACS train is capable of being powered by an emergency power source, respectively. For each of these Technical Specifications, AmerenUE proposes to delete the Required Action for verifying that the OPERABLE CREVS/CRACS train is capable of being powered by an emergency power source.

Specifically, and based on the above, the following changes are proposed for TS 3.7.10 and TS 3.7.11:

For TS 3.7.10:

In the ACTIONS section of this TS, delete Required Action D.1.2, including its specified Completion Time of "Immediately" in the COMPLETION TIME column of this section. This requires deleting the "AND" logical connector that currently and immediately precedes this Required Action. In addition, since there would no longer be a Required Action D.1.1 and Required Action D.1.2 (i.e., there would no longer be any need to subdivide Required Action D.1), Required Action D.1.1 should be changed simply to Required Action D.1.

Likewise, for TS 3.7.11:

In the ACTIONS section of this TS, delete Required Action C.1.2, including its specified Completion Time of "Immediately" in the COMPLETION TIME column of this section. This requires deleting the "AND" logical connector that currently and immediately precedes this Required Action. In addition, since there would no longer be a Required Action C.1.1 and Required Action C.1.2 (i.e., there would no longer be any need to subdivide Required Action C.1), Required Action C.1.1 should be changed simply to Required Action C.1.

2.2 Changes to TS 3.7.13

Under current Callaway TS 3.7.13, the condition of having one EES train inoperable is addressed by either Condition A or Condition D. Condition A is entered if an EES train is declared inoperable during MODES 1, 2, 3, or 4; Condition D is entered if an EES train is declared inoperable during movement of irradiated fuel assemblies in the fuel building. Per the proposed changes, both of these Conditions would be revised so that Condition A would be the first and only Condition entered for an inoperable EES train during any of the MODES or specified conditions specified in the APPLICABILITY section of TS 3.7.13 (i.e., during MODES 1, 2, 3, or 4, or during movement of irradiated fuel assemblies in the fuel building). To effect this change, AmerenUE proposes to revise Condition A of TS 3.7.13 to remove any reference to MODES. This would, by default, make the APPLICABILITY of TS 3.7.13 applicable to Condition A so that Condition A would be applicable in MODES 1, 2, 3, 4 and during movement of irradiated assemblies in the fuel building, whenever a single EES train is declared inoperable during such MODES/conditions.

Since Condition D of TS 3.7.13 currently addresses the condition of having one EES train inoperable during movement of irradiated fuel assemblies in the fuel building, it will be revised to address the condition of when the Required Action and associated Completion Time of Condition A is not met during the movement of irradiated fuel assemblies in the fuel building. That is, Condition D will continue to address the condition of having one EES train inoperable, but it would only be entered when it has been determined that the Required Action and associated Completion Time of Condition A cannot be met during the movement of irradiated fuel assemblies in the fuel building. (Condition C would continue to address the condition of when the Required Action and associated Completion Time of Condition A cannot be met in MODE 1, 2, 3 or 4.)

Based on the above, the following specific changes to TS 3.7.13 are proposed:

For TS 3.7.13:

(1) In the Actions section of this TS, for Condition A, delete the words "in MODE 1, 2, 3, or 4" in the CONDITION column for this Condition (so that the stated condition is simply "one EES train inoperable").

(2) For Condition D, delete all of the current wording in the CONDITION column for this Condition and replace that wording with the following: Required Action and associated Completion Time of Condition A not met during the movement of irradiated fuel assemblies in the fuel building.

All of the above-described changes proposed for Callaway Technical Specifications 3.7.10, 3.7.11 and 3.7.13 are shown on marked-up pages from the current Technical Specifications in Attachment 2 of this submittal. Attachment 3 indicates how the Technical Specifications would appear with the proposed changes incorporated.

In addition to the TS changes, the associated TS Bases will be revised to reflect the changes made to the Technical Specifications (if approved). The proposed TS Bases changes, in the form of marked-up TS Bases pages, are indicated in

Attachment 4 and are provided for information only. The TS Bases changes will be implemented pursuant to the TS Bases Control Program, TS 5.5.14, upon implementation of this license amendment.

3.0 BACKGROUND

A general description of the design features for CREVS, CRACS and EES, as well as the safety function(s) credited in the accident analyses for these systems, is presented below. In addition, an overview of the licensing basis behind the TS requirements for shutdown conditions is also provided, since the intent and effect of the changes proposed for TS 3.7.10 and TS 3.7.11 is to achieve or maintain consistency with that basis.

3.1 CREVS and CRACS Design and Safety Function(s)

As indicated previously, CREVS and CRACS are closely related in design and function with respect to their functions during or following postulated accidents that could impact habitability of the control room. For events that may be postulated to occur during shutdown conditions, in particular, these two systems/functions work together to support control room habitability following a fuel handling accident or waste gas tank rupture. A more detailed description of each system/function is provided as follows.

CREVS

As noted previously, the CREVS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity. The CREVS consists of two independent, redundant trains that pressurize, recirculate, and filter the control room air. Each CREVS train consists of a filtration system train and a pressurization system train. Each filtration system train consists of a fan, a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a second HEPA filter follows the adsorber section to collect carbon fines. Each pressurization system train consists of a fan, a moisture separator, an electric heater, a HEPA filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a second HEPA filter follows the adsorber section to collect carbon fines. Ductwork, valves or dampers, and instrumentation also form part of the CREVS system.

The CREVS is an emergency system which may also operate during normal unit operations. Actuation of the CREVS by a Control Room Ventilation Isolation Signal (CRVIS) places the system in the emergency mode of operation. Actuation of the system to the emergency mode of operation closes the unfiltered outside air intake and unfiltered exhaust dampers, and aligns the system for recirculation of the control room air through the redundant trains of HEPA and the charcoal filters. The emergency (CRVIS) mode also initiates pressurization and filtered ventilation of the air supply to the control room. The instrumentation and/or signals that can effect automatic actuation of CREVS are described in further detail in the FSAR and in the Bases for TS 3.3.7, "Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation."

The control room pressurization system draws in outside air, processing it through a particulate filter charcoal adsorber train (described above) for cleanup. This outside air is diluted with air drawn from the cable spreading rooms and the electrical equipment floor levels within the Control Building and distributed back into those spaces for further dilution. The control room filtration units take a portion of air from the exhaust side of the system, upstream of the outside air intake, for dilution with portions of the exhaust air from the control room air-conditioning system and processes it through the control room filtration system adsorption train for additional cleanup. This air is then further diluted with the remaining control room air-conditioning system return air, cooled, and supplied to the control room. This process maintains the control room under a positive pressure of 1/8 inch water gauge (min.) with respect to the outside atmosphere. This assures exfiltration from the control room, thus preventing any unprocessed contaminants from entering the control room.

The CREVS is designed to maintain the control room environment for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or its equivalent to any part of the body. Applicable design-basis accidents that could cause a radioactivity release and thus demand the safety function provided by CREVS include a loss of coolant accident (LOCA), steam generator tube rupture (SGTR), fuel handling accident inside containment, fuel handling accident in the fuel building, and a waste gas tank rupture. For shutdown conditions, however, only the last three are of concern and they are the events responsible for requiring CREVS to be OPERABLE during Modes 5, 6, and during movement of irradiated fuel assemblies.*

Two independent and redundant CREVS trains are required to be OPERABLE per TS 3.7.10 to ensure that at least one is available assuming a single failure disables the other train. Total system failure could result in exceeding a dose of 5 rem to the control room operator in the event of a large radioactive release.

* Although CREVS can serve to reduce control room dose from a waste gas decay tank rupture (which is the basis for requiring CREVS to be operable in MODES 5 and 6 according to the Bases for TS 3.7.10, it should be noted that CREVS is not credited in the FSAR-described accident analysis for this event. The postulated event, as analyzed in the FSAR, yields very low dose consequences such that control room dose values are not reported in the FSAR for this event.

CRACS

The CRACS consists of two independent and redundant trains that provide cooling of recirculated control room air. Each train consists of a prefilter, self-contained refrigeration system (using essential service water as a heat sink), centrifugal fans, instrumentation, and associated controls. The CRACS is a subsystem to the CREVS, as it provides air temperature control for the control room.

The CRACS is an emergency system which also operates during normal unit operations. A single train will provide the required temperature control to maintain the control room ≤84°F. The design basis of the CRACS is to maintain the control room temperature for 30 days of continuous occupancy.

Two independent and redundant trains of the CRACS are required to be OPERABLE per TS 3.7.11 to ensure that at least one is available, assuming a single failure disables the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

In MODES 1, 2, 3, 4, 5, and 6, and during movement of irradiated fuel assemblies, the CRACS must be OPERABLE to ensure that the control room temperature will not exceed equipment operational requirements. The CRACS is considered to be OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both trains. In addition, the CRACS must be operable to the extent that air circulation can be maintained. Isolation or breach of the CRACS air flow path can also render the CREVS flowpath inoperable. (In such situations, entry into a condition under LCO 3.7.10 may also be necessary.)

3.2 EES Design and Safety Function

The EES consists of two independent and redundant trains. Each train consists of a heater, a prefilter, a high efficiency particulate air (HEPA) filter bank, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, dampers, and instrumentation also form part of the system. A second bank of HEPA filters follows the adsorber section to collect carbon fines.

The EES serves both the auxiliary building and the fuel building. As described in Section 9.4.2 of the Callaway Final Safety Analysis Report (FSAR), the EES collects and processes the airborne particulates in the fuel building in the event of an FHA. In the event of a loss-of-coolant accident (LOCA), the EES processes the atmosphere of the auxiliary building. The EES is thus on standby for an automatic start following receipt of a fuel building ventilation isolation signal (FBVIS) or a safety injection signal (SIS). Although the EES design is based on mitigating the potential consequences of either an FHA or a LOCA, only the FHA mitigation function of the EES (i.e., FBVIS mode) is of concern relative to the proposed changes since only the TS requirements that are applicable during movement of irradiated fuel assemblies in the fuel building are affected by the proposed changes. (The FHA is the accident of concern with respect to why TS 3.7.13 is applicable during the movement of irradiated fuel assemblies in the fuel building.)

The pathway for release of radioactivity for a postulated FHA in the fuel building is initially via the auxiliary/fuel building normal exhaust system. After the fuel building is isolated on a high radiation signal, the release pathway is via the EES emergency filtration system. Thus, if one of the redundant discharge vent radiation monitors indicates that the radioactivity in the vent discharge is greater than prescribed levels, an alarm sounds and the auxiliary/fuel building normal exhaust is switched to the EES to allow the spent fuel pool ventilation to exhaust through the engineered safety-feature charcoal filters of the ESS in order to remove most of the halogens prior to discharging to the atmosphere via the unit vent. The supply ventilation system is automatically shut down (via the FBVIS) on an EES demand, thus ensuring controlled leakage to the atmosphere through charcoal absorbers.

The DBA analysis of the FHA assumes that only one train of the EES is functional due to a single failure that disables the other train. The accident analysis thus accounts for the reduction in airborne radioactive material provided by the one remaining train of this filtration system. Accordingly, two independent and redundant EES trains are required to be OPERABLE per TS 3.7.13 to ensure that at least one train is available, assuming a single failure that disables the other train.

3.3 Overview and Basis for TS Requirements During Shutdown Conditions

The changes proposed for TS 3.7.10, TS 3.7.11 and TS 3.7.13 only affect requirements under these Technical Specifications that are applicable during shutdown conditions (i.e., when moving irradiated fuel during such conditions). The proposed TS 3.7.10 and TS 3.7.11 changes are particularly related to the fact that many of the TS requirements for safety-related systems and the electrical power sources required to support such systems are relaxed for shutdown conditions, in comparison to the TS requirements that are applicable for the same systems during plant operation. These differences in the TS requirements are due to an important difference in the TS basis assumed for operating and shutdown conditions with regard to single-failure and loss-of-power conditions that are required to be assumed, as further explained below.

In general, for safety systems or features required to mitigate design-basis events, redundant and independent, 100%-capacity trains or subsystems are typically provided in accordance with the plant design criteria (i.e., 10 CFR 50 Appendix A). This design provision ensures availability of the required safety function in the event of a single active failure. Thus, for example, in order to ensure mitigation of a design-basis loss-of-coolant accident (DBLOCA), two independent, redundant emergency core cooling system (ECCS) trains are provided such that either (one) train can provide the required mitigation function(s) in the event of a worst-case single failure that disables one train.

Accordingly, the Technical Specifications ensure the availability of such systems by requiring both trains and/or the full compliment of available equipment to be OPERABLE during applicable Modes, particularly during those Modes in which the most limiting accident is likely to occur (notwithstanding the low probability of occurrence of such an event in absolute terms.) Thus for systems required to mitigate design-basis events like the DBLOCA, both trains of equipment designed or credited for mitigating such an event are required during plant operating MODES (1, 2, 3 and 4) since such an event is most likely to happen during those modes (as opposed to when the plant is shutdown and the reactor coolant system is cooled and depressurized. For shutdown conditions, TS requirements are generally less restrictive than those for operating conditions due to the fact that shutdown conditions are generally less limiting and there is a reduced potential for severe challenges to the plant. For the ECCS, for example, both trains are required to be OPERABLE in MODES 1, 2, and 3 per TS 3.5.1, "ECCS-Operating," but only one train is required during MODE 4 per TS 3.5.2, "ECCS-Shutdown."

In particular, with regard to electrical power source/system requirements, both of the plant's redundant diesel generators and both offsite circuit connections are required to be OPERABLE during plant operating conditions (i.e., during MODES 1, 2, 3, and 4) per TS 3.8.1, "AC Sources – Operating," whereas only one diesel generator and one offsite circuit connection are required during MODES 5 and 6 per TS 3.8.2, "AC Sources – Shutdown." As explained in the Bases for TS 3.8.2 (as well as in the Bases for TS 3.8.5, "DC Sources – Shutdown"; TS 3.8.8, "Inverters – Shutdown," and TS 3.8.10, "Distribution Systems – Shutdown") the requirements for operating conditions are based on ensuring mitigation of a design-basis event concurrent with a single failure, and assuming a concurrent loss of offsite power. For shutdown conditions, however, the requirements are reduced due to the reduced potential for a severe challenge to the plant, so that it is not necessary to assume a loss of all onsite or offsite power concurrent with a single failure.

While a severe event such as a design-basis LOCA is not expected to occur during shutdown conditions, there are some events that are postulated to occur during such conditions, namely a fuel handling accident (FHA) and a waste gas tank rupture, for which mitigating system functions are required or assumed. The FHA, in particular, may be postulated to occur during the movement of irradiated fuel assemblies in the fuel building during shutdown conditions.† For events that

†An FHA may also be postulated to occur during plant operation, but an FHA during such conditions is not of concern in this amendment request because other, more bounding TS requirements apply during plant operation and

are postulated to occur during shutdown conditions, it is appropriate that the Technical Specifications continue to require both trains of the credited mitigating system(s) to be OPERABLE in order to accommodate a single failure, i.e., a failure of either train in the event of a demand. However, in keeping with the provisions described in the applicable TS Bases for shutdown conditions, it is not necessary to assume that such an event occurs concurrent with a loss of offsite power and a single failure.

The FSAR change indicated in Attachment 5 will be made in connection with this amendment request to clarify the above basis, thus to ensure consistency between the licensing basis description in the TS Bases and that in the FSAR.

4.0 TECHNICAL ANALYSIS

Justification and analyses for the proposed Technical Specifications changes are presented below. As in the previous sections, the changes proposed for TS 3.7.10 and TS 3.7.11 are addressed separately with respect to the changes proposed for TS 3.7.13.

4.1 Justification/Analysis for Proposed Changes to TS 3.7.10 and TS 3.7.11

As described in Section 2.1, Ameren proposes to delete Required Action D.1.2 from TS 3.7.10 and Required Action C.1.2 from TS 3.7.11. Each of these is the required Action that may be entered when one CREVS/CRACS train is inoperable and which requires verifying that the OPERABLE train is capable of being powered by an emergency power source. Under the current Technical Specifications, Required Actions D.1.2 and/or C.1.2 may be entered (along with Required Actions D.1.1 and/or C.1.1 (when a CREVS/CRACS train is inoperable) in lieu of entering Required Actions D.2.1 and D.2.2 and/or C.2.1 and C.2.2. The latter require suspending CORE ALTERATIONS and the movement of irradiated fuel assemblies. During a refueling outage, entry into the D.1 and/or C.1 Required Actions may be preferred over entry into the D.2 and/or C.2 Required Actions because the latter require halting fuel movement which is often a "critical path" activity during refueling outages.

During refueling outages, the requirements of TS 3.8.2 (as described in Section 3.3) will be in effect for some portion of the outage, since TS 3.8.2 is applicable during MODES 5 and 6. The requirements of TS 3.7.10 and 3.7.11 will also be in effect since they are applicable during the same MODES as well as during the

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those requirements are not affected by the proposed changes. In particular, the Technical Specifications permit the movement of irradiated fuel assemblies in the fuel building during any of MODES 1,2,3,4,5, or 6. Relaxation of requirements applicable during the movement of irradiated fuel assemblies can only be effective, however, during MODES 5 and 6 due to reduced requirements in those MODES and the fact that during MODES 1, 2, 3, and 4 more restrictive requirements apply, including, for example, TS 3.8.1 which requires both diesel generators to be operable during Modes 1, 2, 3 and 4. Relaxation of any requirements applicable to the movement of irradiated fuel assemblies are thus generally only effective for shutdown conditions.

movement of irradiated fuel assemblies. (Although the latter is a special Mode/condition of its own, movement of irradiated fuel may occur concurrent with the plant in Mode 5 or 6.) With these Technical Specifications in effect, both trains of CREVS and CRACS are required to be OPERABLE while only one diesel generator is required to be OPERABLE. If a CRACS or CREVS train would be declared inoperable during such conditions, compliance with Required Action D.1.2 of TS 3.7.10 or C.1.2 of TS 3.7.11 would require immediately verifying that the OPERABLE CREVS or CRACS train is capable of being powered by an emergency power source.

Required Action D.1.2/C.1.2 is typically interpreted to mean that the diesel generator in the same separation group as the affected CREVS or CRACS train must be verified to be available. With only one diesel generator OPERABLE per TS 3.8.2, and if the inoperable CREVS or CRACS train were to fail randomly, it is quite possible that the single OPERABLE diesel generator would not be in the same separation group as the OPERABLE CREVS or CRACS train and that the diesel generator associated with the OPERABLE CREVS/CRACS train would be unavailable so that Required Action D.1.2 or C.1.2 could not be met.[‡] Without being able to meet this Required Action, the D.2/C.2 Required Actions (under TS 3.7.10/TS 3.7.11, respectively) would have to be entered and met instead, which would require suspending CORE ALTERATIONS and the movement of irradiated fuel. This can have a significant impact on the refueling outage duration.

It may be noted that Required Actions D.1.2 and C.1.2 are not specified in the Improved Standard Technical Specifications for CREVS and CRACS [which are respectively identified as "CREFS" (Control Room Emergency Filtration System) and "CREATCS" (Control Room Emergency Air Temperature Control System) in STS 3.7.10 and STS 3.7.11 of NUREG-1431]. These Required Actions are a carryover from the Callaway Plant Technical Specifications that were in place prior to Callaway's conversion to the ISTS in 1999 (but which were not changed in this regard at the time). With the adoption of the ISTS, however, the TS requirements and their basis for shutdown conditions are more clearly defined, making Required Actions D.1.2 and C.1.2 of Callaway's Technical Specifications unnecessary or inconsistent with the requirements and basis intended per the ISTS (as defined in Technical Specifications 3.8.2, 3.8.5, 3.8.8 and 3.8.10).

Further, the definition of OPERABILITY as contained in the current Callaway Technical Specifications and in the ISTS states, "A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and all necessary attendant

[‡] It is possible or likely that both diesel generators would be available during such conditions since measures taken to limit plant risk during shutdown conditions often require plant systems and electrical sources to be available to an extent that exceeds the minimum requirements of the Technical Specifications. However, system maintenance performed during refueling outages may include, for example, tear-down and inspection of a diesel generator(s) such that the affected diesel generator would be unavailable for a significant period of time.

instrumentation, controls, *normal or emergency electrical power*, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s)." Per this definition, OPERABILITY of a CRACS or CREVS train is not necessarily dependent on the availability or operability of an "emergency power source" since that train is OPERABLE when it has "normal or emergency" electrical power.

Thus, while the requirements of TS 3.8.2, etc. provide for the OPERABILITY of at least one diesel generator and associated batteries, inverters, and distribution in one train, the intent and basis of the Technical Specifications is that both CRACS and CREVS trains may be regarded as OPERABLE per TS 3.7.10 and TS 3.7.11 with only the one required electrical train operable, as this is consistent with the definition of OPERABILITY and its application to the CRACS and CREVS trains.

In conflict with above, Required Actions D.1.2 and C.1.2 can only be assuredly met for the unplanned failure of one CREVS/CRACS train if both CREVS/CRACS trains initially have their emergency sources available. Such an initial condition, however, is not one that must be assumed or is required per the Technical Specifications for shutdown conditions, i.e., per the requirements and basis of TS 3.8.2, etc. and the definition of OPERABILITY. Removal of Required Actions D.1.2 and C.1.2 resolves this conflict and is consistent with the TS basis for shutdown conditions.

Additional insight with respect to eliminating the noted Required Actions can be gained by comparing the requirements of TS 3.7.10 and TS 3.7.11 to those of TS 3.7.13. The Required Actions under TS 3.7.13 for an inoperable EES train during shutdown conditions (i.e., during the movement of irradiated fuel assemblies in the fuel building) are similar to the Required Actions for an inoperable CREVS/CRACS train during shutdown conditions, with regard to the fact that the Required Actions of TS 3.7.13 provide the option of either placing the OPERABLE EES train in operation OR suspending movement of irradiated fuel assemblies (in the fuel building). This option is similar to the option allowed for an inoperable CREVS/CRACS train as described in Section 2.1 and above. However, one significant difference is that the Required Action for placing the OPERABLE EES train in operation has no additional Required Action for verifying that the OPERABLE EES train is capable of being powered by an emergency power source. This is notable in light of the fact that EES and CREVS are both credited for mitigating dose potentially incurred from an FHA (even though the former can mitigate both offsite and control room dose, while the latter can only mitigate control room dose). The acceptability of not requiring the OPERABLE (and operating) train to be capable of being powered from an emergency power source is confirmed by the absence of such a requirement in the ISTS for any of the comparable Technical Specifications, i.e., STS 3.7.10 [CFEFS

(CRES)], STS 3.7.11 [CREATCS (CRACS)] and STS 3.7.13 [FBACS (the equivalent of EES as discussed in Section 4.2)].

Beyond and apart from the requirements of the Technical Specifications, plans are required to assess and manage risk for the performance of maintenance activities, including during shutdown conditions (such as during refueling outages), pursuant to 10 CFR 50.65a(4). At Callaway, "safe shutdown" assessments are performed for this purpose, based on the guidance of NUMARC 91-06, "Guidelines for Industry Actions to Address Shutdown Management." These assessments are required to include consideration of defense in depth and contingencies, including provisions for adequate power sources to support required/safe-shutdown equipment. Thus it should be noted that, even with the removal of Required Actions D.1.2 and C.1.2, safe-shutdown assessments performed during plant outages would continue to ensure that shutdown risk is evaluated in the planning of outages and when equipment is declared or rendered inoperable – including unplanned equipment outages - during plant outages. The proposed TS changes impact only what the Technical Specifications require as a minimum, and not what may be deemed prudent or appropriate for assessing and managing risk.

4.2 Justification/Analysis for Proposed Changes to TS 3.7.13

As described in Section 2.2, AmerenUE proposes to incorporate a 7-day Completion Time for restoring an inoperable EES train to OPERABLE status for the special Mode or condition of "during the movement of irradiated fuel assemblies in the fuel building." A 7-day Completion Time is already permitted for restoring an inoperable EES train during Modes 1, 2, 3, and 4 per Condition A (i.e., Required Action A.1) of current TS 3.7.13. The proposed change would modify Condition A so that it may be entered for an inoperable EES train during Modes 1, 2, 3, 4, OR during the movement of irradiated fuel assemblies in the fuel building (consistent with the Applicability of TS 3.7.13).

The proposed 7-day Completion Time (allowed outage time) is consistent with the provisions of the ISTS (NUREG-1431), for a system like the EES. In particular, Standard Technical Specification (STS) 3.7.13, "Fuel Building Air Cleanup System (FBACS)," provides requirements for such a system, as applicable during the movement of irradiated fuel in the fuel building. In the event that one of two redundant trains of the FBACS is declared inoperable, Condition A of STS 3.7.13 applies in the same manner that Condition A does for an inoperable EES train under Callaway TS 3.7.13 (except that, unlike current Callaway TS 3.7.13, STS Condition A applies for all applicable MODES, including during movement of irradiated fuel assemblies in the fuel building). STS Condition A specifically requires restoring the inoperable train to OPERABLE status within a specified Completion Time of 7 days. As noted in the Basis for STS 3.7.13, the 7-day Completion Time is based on the risk from an event occurring with one FBACS train already inoperable, thus requiring the remaining FBACS train to provide the required protective function.

The function of the EES at Callaway is identical to that of the Fuel Building Air Cleanup System (FBACS) addressed in STS 3.7.13 of NUREG-1431; i.e., the system is designed to filter airborne radioactive particulates from the area of the fuel pool following an FHA. On this basis, STS 3.7.13 of NUREG-1431 should be directly applicable to the Callaway and thus equivalent to Callaway's TS 3.7.13. AmerenUE is requesting that the same flexibility allowed in NUREG-1431 for FBACS be allowed for EES in the Callaway Technical Specifications (i.e., that the same 7-day Completion Time be allowed for restoring an inoperable EES train to OPERABLE status prior to entering the Condition that requires placing the OPERABLE train in operation or suspending the movement of irradiated fuel in the fuel building).

From a risk perspective and as noted above, the acceptability of a 7-day Completion Time for restoring an inoperable EES/FBACS train is qualitatively addressed in the Bases for STS 3.7.13, which notes that the 7-day Completion Time is based on the risk from an event occurring requiring the FBACS function, such that the remaining FBACS train would be expected to provide the required protection. The Bases for STS 3.7.13 note that during this period (i.e., the 7-day Completion Time) the remaining OPERABLE train is adequate to perform the FBACS function.

Further insight into the acceptability of the 7-day Completion Time may be gained from two comparisons.

1. Given that the EES is required to be Operable during MODES 1, 2, 3, and 4 due to its required function for mitigating events that can occur during such MODES, e.g., a LOCA or SGTR, as well as during the movement of irradiated fuel assemblies in the fuel building due to its required FHA mitigation function, it is inconsistent that a 7-day Completion Time is allowed for restoring an inoperable EES train during MODES 1, 2, 3, and 4, while <u>no</u> Completion Time is allowed for restoration during the movement of irradiated fuel assemblies in the fuel building. From a qualitative risk point of view, the risk associated with having an EES train inoperable during MODES 1, 2, 3, and 4 is comparable or greater than the risk associated with an inoperable EES train during the movement of irradiated fuel assemblies, especially during shutdown conditions. Therefore, a Completion Time for restoring an inoperable EES train during the movement of irradiated fuel assemblies should be comparable to that allowed during MODES 1, 2, 3, and 4 (as is the case in the ISTS).

2. Given that the EES and CREVS/CRACS both serve to mitigate an FHA, so that these systems/functions are similarly required per their associated Technical Specifications to be OPERABLE during the movement of irradiated

fuel assemblies, they would be expected to have comparable requirements, (even though EES serves to mitigate both offsite and control room dose, while CREVS serves to limit only control room dose). Nevertheless, TS 3.7.10 allows a 7-day Completion Time for restoring an inoperable CREVS train during any of the applicable MODES for that TS, and TS 3.7.11 allows a 30-day Completion Time for restoring an inoperable CRACS train during any of the applicable MODES for that TS. By comparison, TS 3.7.13 specifies MODE –dependent Completion Times for restoring an inoperable EES train such that 7 days is allowed during MODES 1, 2, 3, and 4, while no Completion Time is allowed during the movement of irradiated fuel assemblies in the fuel building. The proposed changes for TS 3.7.13 would make this TS more consistent with TS 3.7.10 and TS 3.7.11, in addition to being more consistent with the ISTS as noted above.

In addition to the above, it should be noted that the proposed change to TS 3.7.13 does not impact compliance with LCO 3.0.4 of the Technical Specifications. That is, although the proposed change to TS 3.7.13 would allow up to seven days for restoring an EES train to OPERABLE status after it has been declared inoperable *during* the movement of irradiated fuel assemblies in the fuel building, the provisions of LCO 3.0.4 would still apply for *entry into* that condition. In effect, LCO 3.0.4 would still require that (for entry into the special Mode/condition of "during the movement of irradiated fuel assemblies in the fuel building") either both EES trains are OPERABLE (i.e., that the LCO is met), or that entry is made under the provisions of Required Action D.1 (which confirms the OPERABILITY of the remaining train), or that a risk assessment is performed in accordance with LCO 3.0.4b. These provisions help to assure that an acceptable configuration exists for entering the special Mode/condition regardless of the proposed Completion Time.

Based on the above, and given the acceptability of the provisions specified per the STS (NUREG-1431) for an inoperable FBACS/EES train(s), it may be assumed that adequate availability of the EES function would still be supported by the EES TS as revised. Therefore, there would be no changes to the assumptions or calculated consequences in the analysis of an FHA in the fuel building as provided in Section 15.4.7 of the Callaway FSAR.

5.0 REGULATORY SAFETY ANALYSIS

5.1 <u>No Significant Hazards Consideration</u>

AmerenUE has evaluated whether or not a significant hazards consideration is involved with the proposed changes by focusing on the three standards set forth in 10 CFR 50.92(c) as discussed below:

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

Incorporation of a 7-day Completion Time for restoring an inoperable EES train during shutdown conditions (i.e., during movement of irradiated fuel assemblies in the fuel building) and the deletion of Required Actions for verifying the availability of an emergency power source when a CREVS/CRACS train is inoperable during the same conditions, are operational provisions that have no impact on the frequency of occurrence of the event for which the EES, CREVS and CRACS are designed to mitigate, i.e., a fuel handling accident (FHA) in the fuel building. These systems, (i.e., their failure) have no bearing on the occurrence of a fuel handling accident as the systems themselves are not associated with any of the potential initiating sequences, mechanisms or occurrences – such as failure of a lifting device or crane, or an operator error – that could cause an FHA. Since these systems are designed only to respond to an FHA as accident mitigators after the accident has occurred, and they have no bearing on the occurrence of such an event themselves, the proposed changes to the CREVS, CRACS and EES Technical Specifications have no impact on the probability of occurrence of an FHA. On this basis, the proposed changes do not involve a significant increase in the probability of an accident previously evaluated.

With regard to consequences of previously evaluated accidents (i.e., an FHA), the proposed changes involve no design or physical changes to the EES or any other equipment required for accident mitigation.

With respect to deleting the noted Required Actions (for verifying that the operable CREVS/CRACS train is capable of being powered from an emergency power source when one CREVS/CRACS train is inoperable), such a change does not change the Limiting Condition for Operation (LCO) requirement for both CREVS/CRACS trains to be operable, nor to the LCO requirements of the TS requirements pertaining to electrical power sources/support for shutdown conditions. The change to the Required Actions would thus not be expected to have a significant impact on the availability of the CREVS and CRACS. That is, adequate availability may be still assumed such that these systems would continue to be available to provide their assumed function for limiting the dose consequences of an FHA in accordance with the accident analysis currently described in the FSAR.

With respect to the allowed outage time (Completion Time) for an inoperable EES train, the consequences of a postulated accident are not affected by equipment allowed outage times as long as adequate equipment availability is maintained. The proposed EES allowed outage time is based on the allowed outage time specified in the Standard Technical Specifications (STS) for which it may be presumed that the specified allowed outage time (Completion Time) is acceptable and supports adequate EES availability. As noted in the STS Bases, the 7-day Completion Time for restoring an inoperable EES train takes into account the availability of the other train. Since the STS-supported Completion Time supports adequate EES availability, it may be assumed that the EES function would be available for mitigation of an FHA, thus limiting offsite dose to within the currently calculated values based on the current accident analysis. On this basis, the consequences of applicable, analyzed accidents (i.e., the FHA) are not increased by the proposed change.

Based on the above, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed changes do not create any new failure modes for any system or component, nor do they adversely affect plant operation. No hardware or design changes are involved. Thus, no new equipment will be added and no new limiting single failures must be postulated. The plant will continue to be operated within the envelope of the existing safety analysis.

Therefore, the proposed changes do not create a new or different kind of accident previously evaluated.

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

Response: No

The calculated radiological dose consequences per the applicable accident analyses remain bounding since they are not impacted by the proposed changes. The margins to the limits of 10 CFR 100 and GDC 19 are thus unchanged by the proposed changes.

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

Based on the above evaluations, AmerenUE concludes that the activities associated with the above described changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92 and accordingly, a finding by the NRC of no significant hazards consideration is justified.

5.2 Applicable Regulatory Requirements/Criteria

The regulatory basis for TS 3.7.13, "Emergency Exhaust System (EES)" is to ensure the EES is capable of limiting the dose consequences of an FHA to below the NRC acceptance criteria given in SRP Section 15.7.4 and GDC 19. This ensures that offsite radiation exposures are maintained well within the requirements of 10 CFR 100.

GDC 61, "Fuel Storage and Handling and Radioactivity Control," requires that the fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to ensure adequate safety under normal and postulated accident conditions.

GDC 64, "Monitoring Radioactivity Releases," requires monitoring the reactor containment atmosphere, spaces containing components for recirculation of loss-of-coolant accident fluids, effluent discharge paths, and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences, and from postulated accidents.

U.S. NRC Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," is NRC guidance which describes the method acceptable to the NRC staff for licensee evaluation of the potential radiological consequences of a fuel handling accident.

NUREG-0800, "U.S. NRC Standard Review Plan," Section 15.7.4, provides guidance to the NRC staff for the review and evaluation of system design features and plant procedures provided for the mitigation of the radiological consequences of postulated fuel handling accidents.

The parameters of concern and the acceptance criteria applied are based on the requirements of 10 CFR 100 with respect to the calculated radiological consequences of a fuel handling accident and GDC 61 with respect to appropriate containment, confinement, and filtering systems.

As noted in the technical analysis presented in Section 4.0, incorporation of the proposed changes to Technical Specifications 3.7.10, 3.7.11 and 3.7.13 would not result in any change to the doses at the exclusion area and low population boundaries that are calculated to result from a postulated FHA (or waste gas tank rupture as evaluated in Callaway FSAR Section 15.7. Therefore, the calculated doses continue to remain well within the limits of 10 CFR 100. In addition, calculated control room doses from a postulated FHA (or waste gas tank rupture) remain unchanged and in compliance with GDC 19. Therefore, the proposed license amendment is in compliance with GDC 61 and 64 as well as Regulatory Guide 1.25, NUREG/CR-5009, and the criteria contained in NUREG-0800, Section 15.7.4.

In conclusion, based on the considerations discussed above, 1) there is a reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, 2) such activities will be conducted in compliance with the Commission's regulations, and 3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

AmerenUE has determined that the proposed amendment would not change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. AmerenUE has evaluated the proposed change and has determined that the change does not involve (i) a significant hazards consideration, (ii) a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure.

As discussed above, the proposed changes do not involve a significant hazards consideration and the consequences from an FHA inside the fuel building remain bounded by the FSAR analysis and well within 10 CFR 100 limits. There is no increase in occupational radiation exposure related to the changes. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.

7.0 REFERENCES

As noted previously, both trains of the CREVS and CRACS are required to be OPERABLE during the movement of irradiated fuel (during shutdown conditions). Like EES, both of these systems are designed to minimize the consequences of an FHA. As a precedent, the Technical Specifications for these systems contain an allowable Completion Time (identical to the Completion Time proposed for the EES) for restoring an inoperable train prior to requiring further actions to be taken.

Finally and as also noted previously, NUREG-1431 Standard TS 3.7.13 allows a Completion Time of 7 days for restoring an inoperable FBACS train prior to the requirement for placing the OPERABLE train in operation. The function and purpose of the FBACS as supported by STS 3.7.13 is nearly identical to that of the EES as supported by Callaway TS 3.7.13.

References:

7.1 FSAR Sections 3.2.1, 6.5.1, 9.4.2, 9.4.3 and 15.7.4.
7.2 NUREG-0800, Standard Review Plan, Section 15.7.4, Rev. 1, July 1981.
7.3 NUREG-1431, Rev. 1, 4/95, STS 3.7.13 and Bases.
7.4 Callaway Plant Technical Specifications 3.8.2, 3.7.10, 3.7.11 and 3.7.13 and Bases
7.5 GDC 19, GDC 61 and GDC 64
7.6 U.S. NRC Regulatory Guide 1.25

ATTACHMENT 2

MARKUP OF TECHNICAL SPECIFICATION PAGES

No changes to this page (provided only for context/continuity).

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.10 Two CREVS trains shall be OPERABLE.

----- NOTE -----
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREVS train inoperable.	A.1	Restore CREVS train to OPERABLE status.	7 days
B. Two CREVS trains inoperable due to inoperable control room boundary in MODES 1, 2, 3, and 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
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.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies.	D.1	Place OPERABLE CREVS train in CRVIS mode.	Immediately
	AND		
	D.1.2	Verify OPERABLE CREVS train is capable of being powered by an emergency power source.	Immediately
	OR		
	D.2.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	D.2.2	Suspend movement of irradiated fuel assemblies.	Immediately
E. Two CREVS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.	E.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	E.2	Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1	Enter LCO 3.0.3.	Immediately

LAR OL-1259

3.7 PLANT SYSTEMS

3.7.11 Control Room Air Conditioning System (CRACS)

No changes to this page (provided only for context/continuity).

LCO 3.7.11 Two CRACS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CRACS train inoperable.	A.1	Restore CRACS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	B.2	B.2Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies.	C.1.1	Place OPERABLE CRACS train in operation.	Immediately
	AND		
	C.1.2	C.1.2Verify OPERABLE CRACS train is capable of being powered by an emergency power source.	Immediately
	OR		
	C.2.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	C.2.2	Suspend movement of irradiated fuel assemblies.	Immediately
D. Two CRACS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.	D.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	D.2	Suspend movement of irradiated fuel assemblies.	Immediately
E. Two CRACS trains inoperable in MODE 1, 2, 3, or 4.	E.1	Enter LCO 3.0.3.	Immediately

3.7 PLANT SYSTEMS

3.7.13 Emergency Exhaust System (EES)

LCO 3.7.13 Two EES trains shall be OPERABLE.

---NOTE---
The auxiliary or fuel building boundary may be opened intermittently under administrative control.

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

---NOTE---
The SIS mode of operation is required only in MODES 1, 2, 3 and 4. The FBVIS mode of operation is required only during movement of irradiated fuel assemblies in the fuel building.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One EES train inoperable. ~~in MODE 1, 2, 3, or 4~~	A.1	Restore EES train to OPERABLE status.	7 days
B. Two EES trains inoperable due to inoperable auxiliary building boundary in MODE 1, 2, 3 or 4.	B.1	Restore auxiliary building boundary to OPERABLE status.	24 hours

(continued)

LAR OL-1259

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4. OR Two EES trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1 AND C.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours
D. ~~One EES train inoperable during movement of irradiated fuel assemblies in the fuel building.~~ Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the fuel building.	D.1 OR D.2	Place OPERABLE EES train in the FBVIS mode. Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately Immediately
E. Two EES trains inoperable during movement of irradiated fuel assemblies in the fuel building.	E.1	Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately

ATTACHMENT 3

RETYPED TECHNICAL SPECIFICATION PAGES

(to be provided later)

ATTACHMENT 4

MARKUP OF TECHNICAL SPECIFICATION BASES PAGES

(For information only)

BASES

LCO (continued)

path can also render the CREVS flow path inoperable. In these situations, LCOs 3.7.10 and 3.7.11 may be applicable.

APPLICABILITY

In MODES 1, 2, 3, and 4, CREVS must be OPERABLE to control operator exposure during and following a LOCA or SGTR.

In MODE 5 or 6, the CREVS is required to cope with the design basis release from the rupture of a waste gas decay tank.

During movement of irradiated fuel assemblies, the CREVS must be OPERABLE to cope with the release from a design basis fuel handling accident inside containment or in the fuel building.

ACTIONS

No changes to this page (provided only for context/continuity).

A.1

When one CREVS train is inoperable, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREVS train is adequate to perform the control room protection function. However, the overall reliability is reduced because a single 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.

B.1

If the control room boundary is inoperable in MODE 1, 2, 3, or 4 such that neither CREVS train can establish the required positive pressure (but the trains are not otherwise inoperable), action 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 radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. (Appropriate compensatory measures include those such as described for the LCO Note in the LCO Bases above).

For the purposes of assessing whether Condition B applies, "control room boundary" may include portions of the Control Building boundary due to analyzed interaction between the Control Building and control room atmospheres during emergency operation of the CREVS, including the

(continued)

TSB CN 05-012
(LAR OL-1259)

ACTIONS

B.1 (continued)

effect of Control Building boundary leakage, as modeled in the control room dose analyses for the DBA LOCA.

The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, the availability of the CREVS to provide a filtered environment (albiet with potential control room inleakage), and the use of compensatory measures. The 24 hour Completion Time is a reasonable time to diagnose, plan, repair, and test most problems with the control room boundary.

C.1 and C.2

In MODE 1, 2, 3, or 4, if the inoperable CREVS train or 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. 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.1.1, D.1.2, D.2.1, and D.2.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies, if the inoperable CREVS train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CREVS train in the CRVIS mode. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected.

Action D.1.2 requires the CREVS train placed in operation be capable of being powered by an emergency power source. This action assures OPERABILITY of the CREVS train in the unlikely event of a Fuel Handling Accident or Decay Tank rupture while shutdown concurrent with a loss of offsite power.

An alternative to Required Actions D.1.1 and D.1.2 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. Required Actions D.2.1 and D.2.2 would place the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

(continued)

No changes to this page (provided only for context/continuity.

ACTIONS (continued)

E.1 and E.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies, with two CREVS trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

E.1

If both CREVS trains are inoperable in MODE 1, 2, 3, or 4, for reasons other than an inoperable control room boundary (i.e., Condition B), the CREVS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

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, by initiating from the control room, flow through the HEPA filters and charcoal adsorbers of both the filtration and pressurization systems, provides an adequate check of this system.

Monthly heater operations dry out any moisture accumulated in the charcoal from humidity in the ambient air. Each pressurization system train must be operated for ≥ 10 continuous hours with the heaters functioning. Functioning heaters will not necessarily have the heating elements energized continuously for 10 hours; but will cycle depending on the air temperature. Each filtration system train need only be operated for ≥ 15 minutes to demonstrate the function of the system. The 31 day Frequency is based on the reliability of the equipment and the two train redundancy availability.

SR 3.7.10.2

This SR verifies that the required CREVS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP).

The CREVS filter tests use the test procedure guidance in Regulatory Guide 1.52 (Ref. 3). The VFTP includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the

(continued)

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Air Conditioning System (CRACS)

BASES

No changes to this page (provided only for context/continuity).

BACKGROUND

The CRACS provides temperature control for the control room.

The CRACS consists of two independent and redundant trains that provide cooling of recirculated control room air. Each train consists of a prefilter, self-contained refrigeration system (using essential service water as a heat sink), centrifugal fans, instrumentation, and controls to provide for control room temperature control. The CRACS is a subsystem to the CREVS, described in LCO 3.7.10, providing air temperature control for the control room.

The CRACS is an emergency system, which also operates during normal unit operations. A single train will provide the required temperature control to maintain the control room ≤ 84°F. The CRACS operation in maintaining the control room temperature is discussed in the FSAR, Section 9.4.1 (Ref. 1).

APPLICABLE SAFETY ANALYSES

The design basis of the CRACS is to maintain the control room temperature for 30 days of continuous occupancy.

The CRACS components are arranged in redundant, safety related trains. During normal or emergency operations, the CRACS maintains the temperature ≤ 84°F. A single active failure of a component of the CRACS, with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. The CRACS is designed in accordance with Seismic Category I requirements. The CRACS is capable of removing sensible and latent heat loads from the control room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY.

The CRACS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two independent and redundant trains of the CRACS are required to be OPERABLE to ensure that at least one is available, assuming a single failure disabling the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

(continued)

BASES

LCO (continued)

The CRACS is considered to be OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both trains. These components include the refrigeration compressors, heat exchangers, cooling coils, fans, and associated temperature control instrumentation. In addition, the CRACS must be operable to the extent that air circulation can be maintained. Isolation or breach of the CRACS air flow path can also render the CREVS flowpath inoperable. In these situations, LCO 3.7.10 would also be applicable.

APPLICABILITY

In MODES 1, 2, 3, 4, 5, and 6, and during movement of irradiated fuel assemblies, the CRACS must be OPERABLE to ensure that the control room temperature will not exceed equipment operational requirements.

ACTIONS

A.1

With one CRACS train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CRACS train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a single failure in the OPERABLE CRACS train could result in a loss of CRACS function. The 30 day Completion Time is based on the low probability of an event requiring control room isolation and the consideration that the remaining train can provide the required protection.

B.1 and B.2

In MODE 1, 2, 3, or 4, if the inoperable CRACS train cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes the risk. 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.

C.1, C.1.2, C.2.1, and C.2.2

In MODE 5 or 6, or during movement of irradiated fuel, if the inoperable CRACS train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CRACS train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur,

(continued)

ACTIONS

C.1.1, C.1.2, C.2.1, and C.2.2 (continued)

and that active failures will be readily detected. Action C.1.2 requires the CRACS train placed in operation be capable of being powered by an emergency power source. This action assures OPERABILITY of the CRACS train in the unlikely event of a Fuel Handling Accident or Decay Tank rupture while shut down concurrent with a loss of offsite power.

An alternative to Required Action C.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

D.1 and D.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies, with two CRACS trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

E.1

If both CRACS trains are inoperable in MODE 1, 2, 3, or 4, the CRACS may not be capable of performing its intended function. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

This SR verifies that the heat removal capability of the CRACS air conditioning units is adequate to remove the heat load assumed in the control room during design basis accidents. This SR consists of verifying the heat removal capability of the condenser heat exchanger (either through performance testing or inspection), ensuring the proper operation of major components in the refrigeration cycle and verification of unit air flow capacity. The 18 month Frequency is appropriate since significant degradation of the CRACS is slow and is not expected over this time period.

REFERENCES

1. FSAR, Section 9.4.1, Control Building HVAC.

BASES (continued)

APPLICABLE SAFETY ANALYSES

No changes to this page (provided only for context/continuity).

The Emergency Exhaust System design basis is established by the consequences of two Design Basis Accidents (DBAs), which are a loss of coolant accident (LOCA) and a fuel handling accident (FHA). The analysis of the fuel handling accident, given in Reference 4, assumes that all fuel rods in an assembly are damaged. The analysis of the LOCA assumes that radioactive materials leaked from the Emergency Core Cooling System (ECCS) and Containment Spray System during the recirculation mode are filtered and adsorbed by the Emergency Exhaust System. The DBA analysis of the fuel handling accident and of the LOCA assumes that only one train of the Emergency Exhaust System is functional due to a single failure that disables the other train. The accident analysis accounts for the reduction in airborne radioactive material provided by the one remaining train of this filtration system. The amount of fission products available for release from the fuel building is determined for a fuel handling accident and for a LOCA. These assumptions and the analysis follow the guidance provided in Regulatory Guides 1.4 (Ref. 6) and 1.25 (Ref. 5).

The Emergency Exhaust System satisfies Criterion 3 of 10 CFR 50.36 (c)(2)(ii).

LCO

Two independent and redundant trains of the Emergency Exhaust System are required to be OPERABLE to ensure that at least one train is available, assuming a single failure that disables the other train. Total system failure could result in the atmospheric release from the auxiliary building or fuel building exceeding regulatory release limits in the event of a LOCA or fuel handling accident.

In MODES 1, 2, 3 and 4 the Emergency Exhaust System (EES) is considered OPERABLE when the individual components necessary to control releases from the auxiliary building are OPERABLE in both trains (i.e., the components required for the SIS mode of operation and the auxiliary building pressure boundary). During movement of irradiated fuel assemblies in the fuel building, the EES is considered OPERABLE when the individual components necessary to control releases from the fuel building are OPERABLE in both trains (i.e. the components required for the FBVIS mode of operation and the fuel building pressure boundary). An Emergency Exhaust System train is considered OPERABLE when its associated:

a. Fan is OPERABLE;

(continued)

BASES

LCO (continued)

b. HEPA filter and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration function, and

c. Heater, ductwork, and dampers are OPERABLE, and air circulation can be maintained.

The LCO is modified by a Note allowing the auxiliary or fuel building boundary to be opened intermittently under administrative controls. 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 consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for auxiliary or fuel building isolation is indicated. Plant administrative controls address the breached pressure boundary.

APPLICABILITY

In MODE 1, 2, 3, or 4, the Emergency Exhaust System is required to be OPERABLE to support the SIS mode of operation to provide fission product removal associated with ECCS leaks due to a LOCA and leakage from containment and annulus.

In MODE 5 or 6, the Emergency Exhaust System is not required to be OPERABLE since the ECCS is not required to be OPERABLE.

During movement of irradiated fuel in the fuel building, the Emergency Exhaust System is required to be OPERABLE to support the FBVIS mode of operation to alleviate the consequences of a fuel handling accident.

The Applicability is modified by a Note. The Note clarifies the Applicability for the two safety-related modes of operation of the Emergency Exhaust System, i.e., the Safety Injection Signal (SIS) mode and the Fuel Building Ventilation Isolation Signal (FBVIS) mode. The SIS mode which aligns the system to the auxiliary building is applicable when the ECCS is required to be OPERABLE. In the FBVIS mode the system is aligned to the fuel building. This mode is applicable while handling irradiated fuel in the fuel building.

ACTIONS

A.1

With one Emergency Exhaust System train inoperable, in MODE 1, 2, 3, or 4, action must be taken to restore OPERABLE status within 7 days. During this period, the remaining OPERABLE train is adequate to perform the Emergency Exhaust System function. This condition only applies to the EES components required to support the SIS mode of operation. The 7 day Completion Time is based on the risk from an event occurring

(continued)

BASES

ACTIONS

A.1 (continued)

requiring the inoperable Emergency Exhaust System train, and the remaining Emergency Exhaust System train providing the required protection.

B.1

If the auxiliary building boundary is inoperable in MODE 1, 2, 3, and 4 such that neither EES train can establish the required negative pressure, action must be taken to restore an OPERABLE auxiliary building boundary within 24 hours. During the period that the auxiliary building boundary is inoperable, appropriate compensatory measures (consistent with the intent, as applicable, of GDC 19, 60, 61, 63, 64, and 10CFR Part 100) should be utilized to protect plant personnel from potential hazards such as radioactive contamination and physical security. Compensatory measures address entries into Condition B. See also the LCO Bases above. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, the availability of the EES to provide a filtered environment (albiet with potential auxiliary building exfiltration), and the use of compensatory measures. The 24 hour Completion Time is a reasonable time to diagnose, plan, repair, and test most problems with the auxiliary building boundary.

When Required Action A.1 cannot be completed within the associated Completion Time during movement of irradiated fuel assemblies in the fuel building,

C.1 and C.2

In MODE 1, 2, 3, or 4, when Required Action A.1 or B.1 cannot be completed within the associated Completion Time, or when both Emergency Exhaust System trains are inoperable for reasons other than due to an inoperable auxiliary building boundary (i.e., Condition B), the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in MODE 3 within 6 hours, and in MODE 5 within 36 hours. This condition only applies to the EES components required to support the SIS mode of operation. The 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

~~With one Emergency Exhaust System train inoperable during movement of irradiated fuel assemblies in the fuel building,~~ the OPERABLE Emergency Exhaust System train must be immediately started in the FBVIS mode per Required Action D.1. This action ensures that no undetected failures preventing system operation exist, and that any active

(continued)

BASES

ACTIONS

D.1 and D.2 (continued)

failure will be readily detected. In addition, and although not explicitly stated in the Required Action, the EES train that is placed into operation must be capable of being powered by an emergency power source (i.e., diesel generator). This supports OPERABILITY of the EES train by ensuring its continued capability to perform its intended safety function in the unlikely event of a fuel handling accident in the fuel building during shutdown conditions, concurrent with a loss of offsite power.

An alternative to Required Action D.1 is to immediately suspend movement of irradiated fuel assemblies in the fuel building per Required Action D.2. This precludes activities that could result in a fuel handling accident and the associated release of radioactivity that might require operation of the Emergency Exhaust System. This action does not preclude the movement of fuel assemblies to a safe position.

E.1

When two trains of the Emergency Exhaust System are inoperable during movement of irradiated fuel assemblies in the fuel building, action must be taken to place the unit in a condition in which the LCO does not apply. Action must be taken immediately to suspend movement of irradiated fuel assemblies in the fuel building. This does not preclude the movement of fuel to a safe position. This condition only applies to the EES components required to support the FBVIS mode of operation, including the fuel building pressure boundary.

SURVEILLANCE REQUIREMENTS

SR 3.7.13.1

Standby systems should be checked periodically to ensure that they function properly. As the environmental and normal operating conditions on this system are not severe, testing each train once every month, by initiating from the Control Room flow through the HEPA filters and charcoal adsorbers, provides an adequate check on this system.

Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. Each Emergency Exhaust System train must be operated for ≥ 10 continuous hours with the heaters functioning. Functioning heaters would not necessarily have the heating elements energized continuously for 10 hours, but will cycle depending on the temperature. The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available. This SR can be satisfied with the EES in the SIS or FBVIS lineup during testing.

(continued)

ATTACHMENT 5

MARKUP OF FSAR PAGE

The probability of a large break in a piping system (e.g., rupture of ECCS piping), subsequent to the original large LOCA pipe break, is considered to be sufficiently low that it need not be postulated.

Single failures of passive components in electrical systems are assumed in designing against a single failure.

3.1.2 ADDITIONAL SINGLE FAILURE ASSUMPTIONS

In designing for and analyzing for a DBA (i.e., loss-of-coolant accident, main steam line break, fuel handling accident, or steam generator tube rupture), the following assumptions are made, in addition to postulating the initiating event.

a. The events are assumed not to result from a tornado, hurricane, flood, fire, loss of offsite power, or earthquake.

b. Any one of the following occurs:

   1. During the short term of an accident, a single failure of any active mechanical component. The short term is defined as less than 24 hours following an accident, or

   2. During the short term of an accident, a single failure of any active or passive electrical component, or

   3. A single failure of passive components associated with long-term cooling capability, assuming that a single active failure has not occurred during the short term. Long-term cooling applies to a time duration greater than 24 hours.

c. No reactor coolant system transient is assumed, preceding the postulated reactor coolant system piping rupture.

d. No operator action is assumed to be taken by plant operators to correct problems during the first 10 minutes following the accident. Although not a design basis accident, operator action times of less than 10 minutes are assumed in the mitigation of an inadvertent ECCS actuation at power event. See Section 15.5.1.

e. All offsite power is simultaneously lost and is restored within 7 days.

f. For a LOCA, for additional safety no credit is taken for the functioning of nonseismic Category I components.

In the design and analysis performed for provision of protection of safety-related equipment from hazards and events (tornadoes, floods, missiles, pipe breaks, fires, and

[except that for events postulated to occur during cold shutdown conditions (e.g., a fuel handling accident), a single failure concurrent with a loss of all offsite power is not required to be assumed].