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PG&E Letter DCL-04-131

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
License Amendment Request 04-05
Revision to Technical Specification (TS) Requirements for Handling Irradiated Fuel in the Primary Containment and the Fuel Handling Building and Selected Specifications Associated with Performing Core Alterations

Dear Commissioners and Staff:

In accordance with 10 CFR 50.90, enclosed is an application for amendment to Facility Operating License Nos. DPR-80 and DPR-82 for Diablo Canyon Power Plant (DCPP) Units 1 and 2, respectively. The enclosed license amendment request (LAR) proposes to revise the TS requirements for handling of irradiated fuel in the containment and fuel building, and certain specifications related to performing core alterations. These changes are based on analysis of the postulated fuel handling and core alteration accidents and transients for DCPP Units 1 and 2. The proposed amendment is consistent with the NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specifications Change Traveler TSTF-51, Revision 2, "Revise containment requirements during handling irradiated fuel and core alterations" (Reference 1). In addition, this LAR proposes to make editorial corrections to TS 3.1.7, "Rod Position Indication," TS 3.3.1, "Reactor Trip System (RTS) Instrumentation," TS 3.4.16, "RCS Specific Activity," TS 3.7.3, "Main Feedwater Isolation Valve (MFIVs), Main Feedwater Regulating Valves (MFRVs), MFRV Bypass Valves, and Main Feedwater Pump (MFWP) Turbine Stop Valves," and TS 3.7.13, "Fuel Handling Building Ventilation System (FHBVS)."

Enclosure 1 contains a description of the proposed change, the supporting technical analyses, and a no significant hazards determination. Enclosures 2 and 3 contain marked-up and revised TS pages, respectively. Enclosure 4 contains the TS bases changes (for information only) to assist the Staff in its review of the proposed changes. Revision to the TS bases will be implemented pursuant to the TS 5.5.14, "Technical Specifications (TS) Bases Control Program," upon approval of this license amendment.

PG&E is a member of an industry consortium of six utilities as a result of a mutual agreement known as Strategic Teaming and Resource Sharing (STARS). The STARS group consists of six plants operated by TXU Energy, AmerenUE, Wolf Creek Nuclear Operating Corporation, Pacific Gas and Electric Company, STP Nuclear Operating Company, and Arizona Public Service Company. As a result of previously submitted LARs by PG&E and differences between the configurations of the other STARS plants, PG&E is submitting this LAR independently and specifically for DCPP. However, it is expected that some of the other STARS members will submit similar LARs in the future.

PG&E has determined that this LAR does not involve a significant hazards consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment.

The proposed changes in this LAR are not required to address an immediate safety concern. Therefore, PG&E is requesting approval of the proposed amendment by October 30, 2005. PG&E requests that the license amendments be made effective upon issuance, to be implemented within 90 days from the date of issuance.

If you have any questions or require additional information, please contact Stan Ketelsen at 805-545-4720.

Sincerely,

David H. Oatley
Vice President and General Manager

dxs/4540
Enclosures
cc: Edgar Bailey, DHS
Bruce S. Mallett
David L. Proulx
Diablo Distribution
cc/enc: Girija S. Shukla

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of PACIFIC GAS AND ELECTRIC COMPANY	)	Docket No. 50-275 Facility Operating License No. DPR-80
Diablo Canyon Power Plant Units 1 and 2	)	Docket No. 50-323 Facility Operating License No. DPR-82

AFFIDAVIT

David H. Oatley, being of lawful age, first being duly sworn upon oath says that he is Vice President and General Manager – Diablo Canyon of Pacific Gas and Electric Company; that he has executed LAR 04-05, "Revision to Technical Specification (TS) Requirements for Handling Irradiated Fuel in the Primary Containment and the Fuel Handling Building and Selected Specifications Associated with Performing Core Alterations" on behalf of said company with full power and authority to do so; that he is familiar with the content thereof; and that the facts stated therein are true and correct to the best of his knowledge, information, and belief.

David H. Oatley
Vice President and General Manager

Subscribed and sworn to before me this 29th day of October 2004.

Notary Public
County of San Luis Obispo
State of California

SANDRA EATHERLY
Commission # 1425568
Notary Public - California
San Luis Obispo County
My Comm. Expires Jul 18, 2007

EVALUATION

1.0 DESCRIPTION:

This letter is a request to amend Facility Operating License Nos. DPR-80 and DPR-82 for Pacific Gas and Electric Company's (PG&E) Diablo Canyon Power Plant (DCPP) Units 1 and 2, respectively.

The license amendment request (LAR) proposes to remove the technical specification (TS) requirements for specific engineered safety features (ESF) to be operable after sufficient radioactive decay has occurred to ensure that offsite doses remain well within the 10 CFR 100.11 limits and remain within the dose limits of General Design Criterion (GDC) 19 of 10 CFR 50 Appendix A. Regulatory dose limits will be satisfied with no credit taken for the retention of fission products by the containment building or the fuel handling building or the ventilation/filtration systems for those buildings and the control room. Associated with this change is the deletion of operability requirements during core alterations for some ESF mitigation features. The changes in this LAR allow the flexibility to move personnel and equipment and perform work that would affect containment operability during the handling of irradiated fuel.

The proposed amendment incorporates changes provided in the NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-51, Revision 2, "Revise containment requirements during handling irradiated fuel and core alterations" (Reference 1), with the following exceptions:

- No change is being proposed to the specification for TS 3.9.7, "Refueling Cavity Water Level," because the core alteration deletion in the applicability and required action for Condition A were previously approved in DCPP License Amendments (LA) 135/135 for Units 1 and 2, respectively (Reference 2).
- The change proposed in TSTF-51 for TS 3.7.11, "Control Room Emergency Air Temperature Control System (CREATCS)," does not apply to DCPP and is not included in this submittal.
- The TSTF-51 changes proposed for TS 3.7.13, "Fuel Building Air Cleanup System," are not included in this LAR because this change was previously approved in LA 163/165, "Diablo Canyon Power Plant, Units 1 and 2 – Issuance of Amendments Re: Control Room, Auxiliary Building, and Fuel Handling Building Ventilation Systems (TAC NOS. MB8485 and MB8486)," dated February 27, 2004. (Reference 3)
- TSTF-51 proposed changes for TS 3.9.4,"Containment Penetrations," to include the addition of "recently" to define the irradiated fuel and the removal of the applicability during core alterations. These TSTF-51 changes are not

included in this LAR because the equivalent capabilities were approved in LA 155/155 for Units 1 and 2, respectively (Reference 4).

This LAR proposes the following editorial changes: TS 3.1.7 adds a section title, the change to TS 3.3.1 corrects surveillance note numbers, TS 3.3.8 changes Condition B wording from "in operable" to "inoperable", the change to TS 3.4.16 corrects a figure number, the change to TS 3.7.3 renumbers one page, and the change to TS 3.7.13 adds the word "recently" in Condition B and C; and in Required Action B.2 and C.1.

2.0 PROPOSED CHANGE

The following discussion identifies DCPP's Limiting Conditions for Operation (LCOs) affected by this proposed amendment and provides a summary of the proposed changes. Enclosure 2 provides a markup of the specific proposed changes.

- Containment Ventilation Isolation Instrumentation, TS 3.3.6

  The applicability requirements for Table 3.3.6-1 are revised to reflect that the specified function is applicable during the movement of recently irradiated fuel assemblies within containment. The applicability requirement during core alterations is deleted. Condition C is revised to be applicable during the movement of "recently irradiated" fuel assemblies within containment. The requirement of Condition C to be applicable during core alterations is deleted.

- Control Room Ventilation System (CRVS) Actuation Instrumentation, TS 3.3.7

  The applicability requirements for Table 3.3.7-1 are revised to reflect that the specified function is applicable during the movement of recently irradiated fuel assemblies. Condition D is revised to be applicable during the movement of "recently irradiated" fuel assemblies and the required action is revised to suspend the movement of recently irradiated fuel assemblies. The required action of Condition D to suspend core alterations is deleted.

- Fuel Building Ventilation System (FBVS) Actuation Instrumentation, TS 3.3.8

  The applicability requirements for Table 3.3.8-1 are revised to reflect that the specified function is applicable during the movement of recently irradiated fuel assemblies in the fuel handling building (FHB). The required action for Condition B is revised to suspend the movement of recently irradiated fuel assemblies in the FHB.

- Control Room Ventilation System (CRVS), TS 3.7.10

  The applicability requirement is revised to reflect that the LCO is applicable during the movement of recently irradiated fuel assemblies. Conditions D and E are revised to be applicable during the movement of recently irradiated fuel assemblies. The required actions for Conditions D and E, which state suspend movement of irradiated fuel assemblies, are revised to suspend the movement of recently irradiated fuel assemblies. The required actions for Conditions D and E to suspend core alterations are deleted.

- AC Sources – Shutdown, TS 3.8.2

  The applicability requirements are revised to reflect that the LCO is applicable during the movement of recently irradiated fuel assemblies. The required action of Conditions A and B are revised to include the suspension of the movement of recently irradiated fuel assemblies.

- DC Sources – Shutdown, TS 3.8.5

  The applicability requirements are revised to reflect that the LCO is applicable during the movement of recently irradiated fuel assemblies. The required action of Condition A is revised to include the suspension of the movement of recently irradiated fuel assemblies.

- Inverters – Shutdown, TS 3.8.8

  The applicability requirements are revised to reflect that the LCO is applicable during the movement of recently irradiated fuel assemblies. The required action of Condition A is revised to include the suspension of the movement of recently irradiated fuel assemblies.

- Distribution Systems – Shutdown, TS 3.8.10

  The applicability requirements are revised to reflect that the LCO is applicable during the movement of recently irradiated fuel assemblies. The required action of Condition A is revised to include the suspension of the movement of recently irradiated fuel assemblies.

  Following NRC approval of this request, the Bases for these LCOs will be updated to identify recently irradiated fuel assemblies as fuel assemblies that have occupied part of a critical reactor core within the past 100 hours.

  The proposed changes are based on the results of fuel handling accident (FHA) analyses that show only recently irradiated fuel contains sufficient fission products to require operability of FHA mitigation features to meet the regulatory limits placed

on offsite doses. Therefore, the applicability requirements for the associated mitigation features are revised. The term "recently irradiated" is time-based and represents the decay period for the reduction in radionuclide inventory available for release in the event of a FHA. The term "recently irradiated" establishes a point at which operability of those systems typically used to mitigate the consequences of a FHA is no longer needed to meet the radiation exposure limits specified in 10 CFR 100.11 and GDC 19.

The proposed changes do not impact TS requirements for systems needed to prevent or mitigate other than the FHA. The proposed changes also do not change the requirements of systems needed to mitigate potential vessel drain down events, systems needed for decay heat removal, or the requirements to maintain high water levels over irradiated fuel.

LA 155/155 (Reference 4) was previously approved based on the premise that administrative controls will be in place to provide for containment closure in the event of a FHA inside containment. These administrative controls remain applicable to this proposed licensing amendment.

The proposed editorial corrections in this LAR include:

- Rod Position Indication, TS 3.1.7

  Section header "3.1 Reactivity Control Systems," is added to the TS page 3.1-13 for consistency with the TS format.

- RTS Instrumentation, TS 3.3.1

  The notes in SR 3.3.1.7 are renumbered to correct an error.

- FBVS Actuation Instrumentation, TS 3.3.8
  Condition B wording is changed from "in operable" to "inoperable"

- Reactor Coolant System Specific Activity, TS 3.4.16

  Figure number 3.4-1, "Dose Equivalent I-131 Reactor Coolant Specific Activity Limit Versus Percent of Related Thermal Power With the Reactor Coolant Specific Activity > 1μCI/Gram Dose Equivalent I-131," is corrected to 3.4.16-1.

- Main Feedwater Isolation Valve (MFIVs), Main Feedwater Regulating Valves (MFRVs), MFRV Bypass Valves, and Main Feedwater Pump (MFWP) Turbine Stop Valves, TS 3.7.3

  Page 3.7-8 is renumbered to 3.7-7a to eliminate a duplicate page number.

- Fuel Handling Building Ventilation System (FHBVS), TS 3.7.13.

  Added the word "recently" to qualify the irradiated fuel in Condition B and C; and Required Action B.2 and C.1 to agree with the applicability of the TS approved in LA 163/165 (Reference 3).

In summary, the proposed amendment to the TS makes some minor editorial changes, and revises those specifications associated with handling irradiated fuel assemblies in the reactor containment and the FHB, and selected specifications associated with core alterations. The purpose is to establish a point at which operability of those systems typically used to mitigate the consequences of a FHA is no longer required to meet the NUREG-0800, Standard Review Plan, Section 15.7.4 (Reference 5), guidance for offsite dose effects (i.e., 75 rem thyroid and 6 rem whole body), control room limits of GDC 19 (i.e., 30 rem thyroid and 5 rem whole body), or acceptable total effective dose equivalent (TEDE) limits at the site boundaries where RG 1.183, "Alternate Radiological Source Terms For Evaluating Design Basis Accidents At Nuclear Power Reactors," (Reference 6) criteria have been implemented.

3.0 BACKGROUND

The proposed changes redefine the fuel handling requirements in two areas, given the specified decay period since criticality.

- Requirements associated with integrity of the reactor containment and the FHB are relaxed during fuel handling since no credit is taken for such conditions in the associated analyses for mitigation of a FHA.

- Requirements for selected ESF systems (those which are not credited for mitigating a FHA in the associated analyses and their associated support systems) are relaxed.

The following systems are affected by this proposed amendment.

The containment ventilation isolation instrumentation closes the containment purge supply, exhaust, and the vacuum/pressure relief valves. It also closes the containment atmosphere sample valves. This action in conjunction with a Phase A containment isolation signal isolates the containment atmosphere from the outside containment environment to minimize releases of radioactivity in the event of an accident.

The CRVS provides a protected environment in the common control room from which operators can control Units 1 and 2 following an uncontrolled release of radioactivity, chemicals, or toxic gas. The CRVS satisfies the design

requirements of limiting dose to the control room operators following the design basis accident in accordance with GDC 19 of 10 CFR 50 Appendix A.

Units 1 and 2 each have 2 CRVS equipment trains, each consisting of a filter booster fan, a charcoal filter heater, a main supply fan, an air cooling assembly, and the shared use of a passive high efficiency particulate air (HEPA) filter and charcoal filter/adsorber assembly. The basis for common use of the filter/adsorber assembly is that it is passive in operation and inactive except when operating in Modes 3 and 4.

Operability of the CRVS requires two independent, redundant trains that recirculate and filter the control room air (one train from Unit 1 and one from Unit 2). Each of these trains consists of a heater, a pre-filter, a HEPA filter, an activated charcoal adsorber section for removal of activity (principally iodines), and one pressurization supply fan, one filter booster fan, and one main supply fan. The system also consists of ductwork, dampers, and instrumentation. The CRVS is an emergency system, parts of which also operate during normal unit operations. Upon receipt of an actuating signal that requires recirculation, the CRVS actuation instrumentation isolates the normal air supply to the control room and the stream of outside ventilation air from the pressurization system, and recirculates control room air through the system filters.

The FHBVS ensures that radioactive materials in the FHB atmosphere following a FHA are filtered prior to exhausting to the outside environment. The FHBVS filters airborne radioactive particulates and radioactive iodine from the area of the spent fuel pool (SFP) following a FHA. The FHBVS provides environmental control of temperature and humidity in the SFP area and for the auxiliary feedwater (AFW) pump motors. The ventilation for the AFW pump motors is to provide cooling flow for environmental qualification considerations (i.e., motor longevity). This AFW area ventilation is not required to function during the FHA. The FHBVS consists of two independent and redundant trains. Each train consists of an exhaust prefilter, HEPA filter, an activated charcoal adsorber section for removal of activity (principally iodines), and an exhaust fan. A third non-vital exhaust fan is used for normal operation and has only a prefilter and a HEPA filter. The system also consists of ductwork, valves or dampers, and instrumentation.

The FHBVS is a standby system, parts of which also operate during normal plant operations. The FHBVS actuation instrumentation initiates filtered ventilation of the FHB following receipt of a high radiation signal or loss of the normal exhaust fan. Upon receipt of the actuating signal, the normal air discharge from the FHB is isolated; the normal exhaust fan shuts down, the vital exhaust fans start, and the stream of ventilation air discharges through the system filtration trains.

The reactor containment serves to contain fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation

exposures are maintained within the requirements of 10 CFR 100.11. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The Class 1E alternating current (AC) electrical power distribution system (AC sources) for each unit consists of offsite power sources (normal and alternate), and the onsite standby power sources (three emergency diesel generators (DGs) for each unit). As required by 10 CFR 50, Appendix A, GDC 17, the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the ESF systems. The onsite Class 1E AC distribution system for each unit is divided into three load groups so that the loss of any one group does not prevent the minimum safety functions from being performed. Each load group has connections to the two offsite power sources and a single DG.

Offsite power is supplied to the 230 kV and 500 kV switchyards from the transmission network by two 230 kV transmission lines and three 500 kV transmission lines. These two electrically and physically separated circuits provide AC power, through auxiliary and standby startup transformers, to the 4.16 kV ESF buses. The TS operability of the minimum AC sources during Modes 5 and 6 and during movement of irradiated fuel assemblies ensures that: the associated unit can be maintained in the shutdown or refueling condition for extended periods; sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and adequate AC electrical power is provided to mitigate events postulated during shutdown, such as a FHA.

The Class 1E direct current (DC) electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety-related equipment and backup 120 VAC vital bus power (via inverters). As required by 10 CFR 50, Appendix A, GDC 17, the Class 1E DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure.

The 125 VDC electrical power system (DC sources) consists of three independent safety related Class 1E DC electrical power subsystems. Each subsystem consists of one 60-cell 125 VDC battery, a dedicated battery charger, a backup charger for each battery, all the associated switchgear, control equipment, and interconnecting cabling. There are only two backup chargers for the three Class 1E DC subsystems. One backup charger is shared between two Class 1E DC subsystems. The other backup charger is dedicated to the third Class 1E DC subsystem. During normal operation, the 125 VDC load is powered from the battery chargers with the batteries floating on the system. In the event of loss of normal power to the battery charger, the DC load is automatically powered from the station batteries. Each DC source provides the

control power for its associated Class 1E AC power load group, 4.16 kV switchgear, and 480V load centers. The DC sources also provide DC electrical power to the inverters, which in turn are backup sources to power the 120 VAC vital buses. The TS operability of the minimum DC sources during Modes 5 and 6 and during movement of irradiated fuel assemblies ensures that the associated unit can be maintained in the shutdown or refueling condition for extended periods; sufficient instrumentation and control capability is available for monitoring and maintaining the associated unit status; and adequate DC electrical power is provided to mitigate events postulated during shutdown, such as a FHA.

The Class 1E uninterruptible power source (UPS) inverters are the preferred source of power for the 120 VAC vital buses because of the stability and reliability they achieve. The function of the inverter is to provide AC electrical power to the 120 VAC vital buses. The inverters can be powered from an internal AC source/rectifier or from the station battery. The station battery provides UPS for the instrumentation and controls for the reactor protective system and the ESF actuation system. The TS operability of the minimum inverters to each 120 VAC vital bus during Modes 5 and 6, and the movement of irradiated fuel assemblies ensures that the associated unit can be maintained in the shutdown or refueling condition for extended periods; sufficient instrumentation and control capability is available for monitoring and maintaining the associated unit status; and adequate power is available to mitigate events postulated during shutdown, such as a FHA.

The onsite Class 1E electrical power distribution system is designed with three 4.16 kV and 480V vital buses and three 125 VDC vital buses. The plant protection system is designed with four input channels powered from four 120 VAC vital buses. The four channels provide input to the solid-state protection system (SSPS) Trains A and B. Each SSPS train actuates ESF equipment in the three vital AC and DC buses and certain non-vital equipment in the non-vital AC and DC buses. There are three AC electrical power subsystems, each comprised of a primary ESF 4.16 kV bus and secondary 480V and 120V buses, distribution panels, motor control centers and load centers. Each 4.16 kV ESF bus has two separate and independent offsite sources of power as well as a dedicated onsite EDG source. Each 4.16 kV ESF bus is normally connected to the 500 kV offsite source. After a loss of this normal 500 kV offsite power source to a 4.16 kV ESF bus, a transfer to the alternate 230 kV offsite source is accomplished by utilizing a time-delayed bus undervoltage relay. If all offsite sources are unavailable, each onsite DG supplies power to its associated 4.16 kV ESF bus. Control power for the 4.16 kV breakers is supplied to the 125 VDC vital buses from the Class 1E batteries.

DCPP is requesting this amendment to provide flexibility in scheduling of maintenance and outage tasks and to relax unnecessarily restrictive building

closure and ventilation system requirements. Maintenance tasks and outages can be optimized to achieve an overall risk reduction while also reducing equipment outage time and cost.

LA 155/155, (Reference 4), relaxed closure requirements for the containment. That amendment determined that at 100 hours post critical, irradiated fuel has sufficiently decayed so that mitigating the FHA inside containment no longer requires the functioning of the active containment systems.

LA 163/165 (Reference 3) relaxed TS requirements associated with the FHBVS system. For the FHB, work restraints were being experienced during required periods of building closure, due to limits on equipment and vehicle access. Fuel handling activities were being stopped to permit such access, which often times impacted outage critical path. Also, productivity losses occurred when personnel were involved in multiple evolutions of establishing, maintaining and releasing closure of the FHB. This proposed amendment is consistent with LA 163/165, and is based on TSTF-51, Revision 2. LA 163/165 also established that irradiated fuel that has not been part of a critical reactor core within the last 100 hours has sufficiently decayed so that mitigating the FHA no longer requires the functioning of the active ventilation and pressurization systems or their support systems.

These factors, coupled with the increased flexibility for scheduling testing and maintenance activities on ventilation, electrical and instrumentation systems, can result in significant accrued cost reductions and productivity enhancements over the remaining operating life of the plant. With approval of this proposed amendment, outage resources can to be directed to other activities, which ultimately will result in improvements in plant maintenance, operations and overall safety.

4.0 TECHNICAL ANALYSIS

Following reactor shutdown, decay of short-lived fission products greatly reduces the fission product inventory present in irradiated fuel. The proposed amendment takes credit for the normal decay of irradiated fuel rather than crediting active mitigating systems (e.g., ventilation and filtration systems). Since radioactive decay is a natural phenomenon, it has a reliability of 100 percent in reducing the radiological release from the fuel assemblies. The water that covers the fuel assemblies is another barrier to a significant radiological release. This defense-in-depth method will continue to be enforced by TS controls. TS 3.9.7, "Refueling Cavity Water Level" controls reactor cavity water level at equal to or greater than 23 feet over the top of the reactor vessel flange during the movement of irradiated fuel assemblies within containment and TS 3.7.15, "Spent Fuel Pool Water Level," controls the SFP water level at equal to or greater than 23 feet over the top of irradiated fuel assemblies seated in the storage racks.

Summary of Current Licensing Basis

The DCPP TS defines operability requirements and surveillance intervals for the FHBVS, the FBVS Actuation System, and the associated electrical power systems. In the current approved design basis calculations for the FHA, these systems are credited for limiting the transport of fission products to the environment. However, based on the supporting FHA analysis for LA 163/165 (Reference 3), the resultant radiological effects after two hours at the exclusion area boundary (EAB) was calculated to be 4.27 rem TEDE and at the low population zone (LPZ) to be 0.112 rem TEDE. These doses were determined by analyses that partially implemented regulatory guide (RG) 1.183 guidance and were determined to be less than the RG 1.183 acceptable dose limits of 6.3 rem TEDE for both the EAB and LPZ.

The partial implementation of RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," issued in July 2000, (Reference 6) involves new guidance on acceptable applications of alternative source terms. Specifically, in Appendix B of RG 1.183, guidance is provided on evaluating the radiological consequences of a FHA and acceptable overall decontamination factors of 200 if the water depth above the damaged fuel is greater than 23 feet. This decontamination factor is a relaxation over previous guidance and is used in the new FHA analysis in support of the proposed TS changes.

Also in the above supporting FHA analyses, the 30-day control room doses were found to be 22.28 rem thyroid and 0.007523 rem whole body which are still significantly below the GDC 19 acceptable limits of 30 rem thyroid and 5 rem whole body. As a result, the FHA analyses performed in support of LA 163/165, justify the relaxation of the operability requirements of the specified support systems included in this amendment request.

A revised analysis of the radiological consequences of a FHA in the containment was approved in LA 155/155. That analysis assumed that the reactor containment was open to the outside atmosphere and no credit was taken in the analysis for closing any release paths. Also no credit was taken for the containment ventilation system. The resultant radiological effects after 2 hours at the EAB were 60.62 rem thyroid and 0.4281 rem whole body, and at the LPZ were 2.521 rem thyroid and 0.0178 rem whole body. These calculated radiological consequences are significantly less than the NUREG 0800, Section 15.7.4 guidance of 75 rem thyroid and 5 rem whole body. That same containment FHA analysis included credit for the CRVS filtration in protecting the control room operators. Although the approved FHA analysis supporting LA 155/155, supports the relaxation of containment closure requirements provided in those submittals, and justifies the relaxation of the operability

requirements of the containment purge and monitoring systems provided in this LAR, it does not directly support the relaxation of the CRVS and CRVS actuation systems. As a result, a FHA reanalysis was completed to support of the relaxation of the operability requirements of the CRVS and CRVS actuation systems. This reanalysis is discussed below.

Both the current approved FHA inside containment analysis, and the previously proposed FHB FHA analysis are based on and support the definition of recently irradiated fuel assemblies in this LAR. That definition is based on a fuel assembly being part of a critical reactor core within the previous 100 hours.

Reanalysis of the FHA Inside Containment

The current FHA inside containment analysis credits filtration by the CRVS. Per this LAR, the CRVS is not required to be operable and as a result, the supporting analysis of the FHA inside containment has been revised to eliminate the credit taken previously for the CRVS filtration.

The FHA inside containment reanalysis maintained all previous assumptions that were approved in LA 155/155, with the exception of the control room filtration factors for the CRVS. As a result of that reanalysis the only doses that were modified was the control room dose. Per the reanalysis, the calculated 30-day doses in the control room went from 11.56 rem to 22.31 rem thyroid and 0.00717 rem to 0.00757 rem whole body. These calculated doses are within the acceptable range of GDC 19 of 10 CFR 50, Appendix A, for the control room, which is 30 rem thyroid and 5 rem whole body. All other doses remained unchanged as a result of this reanalysis and continue to meet the NUREG 0800, Section 15.7.4, guidance of "well within" the 10 CFR 100.11 limits as approved in LA 155/155.

Definition of Recently Irradiated Fuel Assemblies

The use of the term "recently irradiated" fuel assemblies provides a mechanism for applying a minimum fission product decay period to various TS to which the concept applies. The 100-hour period, which will be specified in the TS Bases sections for the affected TS, has been shown by analysis to assure that sufficient decay has taken place such that, assuming any design basis FHA, the radiological consequences are within the acceptance criteria of NUREG 0800, Section 15.7.4, RG 1.183, or GDC 19, as applicable.

The basis for the establishment of this 100-hour limit is that following a reactor shutdown, decay of the short-lived fission products within the fuel significantly reduces the fission product inventory present in irradiated fuel. The proposed change is based on FHA analyses that were performed assuming a fixed decay period (100 hours) to take advantage of the reduction in radionuclide inventory

available for release in the event of a FHA. Following the 100-hour decay period, the primary success path for mitigating the FHA no longer includes the functioning of the active containment and/or control room filtration systems. Therefore, the proposed changes modify the applicable TS to reflect that the water level and decay time are the primary success path for mitigating a FHA.

The revised requirements redefine the LCO applicability for instrumentation and devices that isolate containment and the FHB, and those for selective ESF systems designed to mitigate the radiological impact of a postulated FHA. The proposed applicability is consistent with the assumptions associated with both the FHA in containment and the FHA in the FHB.

Justification for Deletion of Core Alteration Activities

Core alterations are defined as the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the reactor head removed and fuel in the vessel. Per TSTF-51, Revision 2, in support of the change in requirements during the handling of irradiated fuel, the operability requirements during core alterations for ESF mitigation features are deleted. The TSTF-51, Revision 2, basis for this deletion is that the accidents postulated to occur during core alterations, in addition to a FHA, are limited and are not postulated to result in fuel cladding damage. As a result, the only accident postulated to occur during core alterations that results in a significant radioactive release, is the FHA. Therefore, the proposed TS requirements omitting core alterations are justified.

The accidents postulated at DCPP that could occur during core alterations, in addition to a FHA, include the inadvertent loading and subsequent operation of a fuel assembly in an improper location. As described in final safety analysis report – updated (FSARU), Section 15.3.3, this event is not limited to core alteration and is not postulated to result in fuel cladding integrity damage or radioactive material release from the fuel. As a result, the only accident postulated to occur during core alterations that results in a significant radioactive release, is a FHA. The proposed TS changes which delete core alterations from the applicability and required actions of the included TSs, are justified based on the TS requirements being maintained for operability of these systems and their functions during the movement of recently irradiated fuel assemblies within containment.

LCO applicability requirements remain unaffected for all other TS that are required to prevent or mitigate core alteration events other than the FHA, and for operations with a potential for draining the reactor vessel. In addition, applicability requirements are unaffected for TS of decay heat removal systems during shutdown conditions, and for TS that require maintenance of high water levels over irradiated fuel.

Shutdown Safety Assessment

In TSTF-51, Revision 2, the proposed changes are further justified based on guidance in NUMARC 93-01, Revision 2, Section 11.3.6, "Assessment Methods for Shutdown Conditions," under the subheading "Containment – Primary (PWR)/Secondary (BWR)," (Reference 7). That guidance is as follows:

> *"...for plants which obtain license amendments to utilize shutdown safety administrative controls in lieu of Technical Specification requirements on primary or shutdown containment operability and ventilation system operability during fuel handling or core alterations, the following guidelines should be included in the assessment of systems removed from service:*
>
> - *During fuel handling/core alterations, ventilation system and radiation monitor availability (as defined in NUMARC 91-06) should be assessed, with respect to filtration and monitoring of releases from the fuel. Following shutdown, radioactivity in the RCS decays fairly rapidly. The basis of the Technical Specification operability amendment is the reduction in doses due to such decay. The goal of maintaining ventilation system and radiation monitor availability is to reduce doses even further below that provided by the natural decay, and to avoid unmonitored releases.*
>
> - *A single normal or contingency method to promptly close primary or secondary containment penetrations should be developed. Such prompt methods need not completely block the penetration or be capable of resisting pressure. The purpose is to enable ventilation systems to draw the release from a postulated fuel handling accident in the proper direction such that is can be treated and monitored."*

The purpose of the "prompt methods" mentioned above is to enable ventilation systems to draw the release from a postulated FHA in the proper direction such that it can be treated and monitored. The NUMARC 93-01 guidance is built upon two basis premises: avoiding unmonitored releases and using available (although not necessarily "OPERABLE" as defined in the DCPP TS) filtration capabilities to further reduce doses.

LA155/155 (Reference 4) was approved and although not required per the supporting analysis, includes provisions requiring administrative controls to be in place to immediately initiate and complete containment closure within approximately 30 minutes of a FHA. LA 155/155 does not require the availability of any ventilation or monitoring system for the containment.

DCPP does not have a filtration system on the containment purge system and the containment ventilation system is internal to the containment and is normally isolated from the plant vent and the outside atmosphere. As a result, closing the containment to the outside atmosphere is the only success path to reducing the potential release from a FHA inside containment. As is provided in the current FHA analysis the closure of the containment is not credited to meet the NUREG-0800 limits for offsite doses. Therefore, providing the administrative procedures requiring immediate initiation of the containment closure and actual closure in approximately 30 minutes will reduce the potential release. Once the containment is closed, there is no further release. As a result, PG&E believes that having these procedures in place meets the intent of the NUMARC 93-01 criteria.

Control Room Systems

The DCPP control room is shared for both Units 1 and 2, with separate ventilation trains provided for each unit. Removing CRVS-related ESF systems and ESF support systems from service may have a direct impact on the other unit depending on that unit's current mode of operation. As a result, any action to remove these control room ESF systems or ESF support systems from service will be evaluated under the DCPP Maintenance Rule program. No CRVS-related ESF system or ESF support system will be removed from operation without a proper determination of its potential effect on the other unit and the risk involved with that action.

Editorial Corrections

TS 3.1.7 was previously modified per LA 164/166 and resulted in the section header on page 3.1-13 being inadvertently removed and is being corrected.

TS 3.3.1 was previously modified per LA 164/166 and resulted in the notes for surveillance SR 3.3.1.7 being incorrectly numbered and they are being corrected.

TS 3.3.8 Condition B "in operable" is corrected to "inoperable".

Figure number 3.4-1 of TS 3.4.16 was incorrectly numbered during the implementation of the Improved Technical Specification Program, License Amendments (LA) 135/135 (Reference 3), and is being corrected to figure number 3.4.16-1.

There are currently two TS pages numbered 3.7.8. This resulted from an incorrect page number being provided to the NRC by PG&E, and implemented in LA 140/140 (Reference 9). The LA added a new TS page to TS 3.7.3 and it should have been numbered 3.7-7a instead of 3.7-8.

TS 3.7.13 was modified per LA 163/165 to qualify the applicability of the TS to the movement of recently irradiated fuel, only. However, the qualification of the irradiated fuel was not carried into LCO Conditions B and C, and Required Actions B.2 and C.1, as indicated by the applicability statement. This proposed change corrects that oversight.

Conclusion

The proposed changes redefine the operability requirements for selected accident mitigation features (building integrity and mitigating ESF systems). As defined in this LAR, these features are required to be operable during the time frame early in a refueling outage when mitigation of a FHA requires them to function to meet the regulatory dose limits. Both the FHA inside containment and FHA in the FHB analyses demonstrate that after 100 hours of sub criticality, the applicable regulatory dose limits are satisfied without credit for building integrity and mitigating ESF system operation. Adequate defense in depth is maintained by the TS requirements for water level and radioactive decay.

TS requirements for systems needed for decay heat removal, systems needed to mitigate the potential vessel drain down events, or the requirements to maintain high water levels over irradiated fuel are not impacted by the proposed change.

The proposed changes also delete operability requirements for building integrity and specific mitigating ESF systems during core alterations, since the only accident postulated to occur during core alterations that result in significant radioactive release is the FHA. Providing adequate protection and mitigation to meet the requirements of a FHA inside containment, bounds any postulated accident during core alterations.

The proposed editorial changes correct minor errors in section headers, note numbering, figure and page numbers, and the implementation of an approved license amendment to ensure consistency in the TS. These editorial changes have no affect on the operational or technical bases of their associated TS.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

Pacific Gas and Electric Company (PG&E) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

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

   Response: No

   The proposed change involves changes to accident mitigation system requirements. These systems are related to controlling the release of radioactivity to the environment and are not considered to be accident initiators for any previously analyzed accident. The proposed changes do not involve physical modifications to plant equipment, and do not change the operational methods or procedures used for moving irradiated fuel assemblies. As such, there are no accident initiators affected by the proposed amendment. Therefore, the proposed change does not impact the probability of postulated accidents.

   Consistent with the previously approved design basis analysis, the reanalysis of the containment fuel handling accident (FHA) concludes that radiological consequences of the accident at the Exclusion Area Boundary and the Low Population Zone Boundary are unchanged and remain well within the 10 CFR 100.11 limits, as defined by acceptance criteria in NUREG 0800, Section 15.7.4, and within the limits of general design criteria (GDC) 19 of 10 CFR 50, Appendix A. However, per this reanalysis, the calculated 30-day doses in the control room increased from 11.56 rem to 22.31 rem thyroid and from 0.00717 rem to 0.00757 rem whole body. Although these calculated doses increased they remain well within the acceptable limits of GDC 19 of 10 CFR 50, Appendix A, for the control room, which is 30 rem thyroid and 5 rem whole body. As a result, the increase in the doses is not considered to be a significant increase.

   The results of the core alteration events, other than a FHA, remain unchanged from the original design basis, which showed that these events do not result in fuel cladding integrity damage or radioactive releases. Therefore, the proposed changes do not significantly increase the consequences of any previously evaluated accident.

   In addition, the editorial corrections have no affect on the associated components, structures or systems, and their operation or design bases.

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

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

   Response: No

   The proposed change affects a previously evaluated accident (i.e., FHA). However, the proposed change does not introduce any new modes of plant operation and does not involve physical modifications to the plant. The proposed change does not change how design basis accidents were postulated nor does the proposed change initiate a new kind of accident or failure mode with a unique set of conditions.

   In addition, the editorial corrections have no affect on associated components, structures or systems, and their operation or design bases.

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

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

   Response: No

   The proposed change imposes controls to ensure that during performance of activities that represent situations where radioactive releases are postulated, the radiological consequences are at or below the established licensing limit. Safety margins and analytical conservatisms have been evaluated and are understood. Substantial conservatism is retained to ensure that the analysis adequately bounds all postulated event scenarios. Specifically, the margin of safety for a FHA is the difference between the 10 CFR 100.11 limits and the licensing limit defined by the NUREG-0800, Section 15.7.4. The licensing limit is defined by the NUREG as being "well within" the 10 CFR 100.11 limits, with "well within" defined as 25 percent of the 10 CFR 100 limits of the FHA. Excess margin is the difference between the postulated doses and the corresponding licensing limit.

   The proposed applicability requirements continue to ensure that the whole-body, thyroid and total effective dose equivalent (TEDE) doses at the exclusion area and low population zone boundaries are at or below the corresponding licensing limit for both the FHA

inside containment and in the fuel handling building. In addition, control room doses for both FHAs meet GDC 19 criterion. Although the control room doses as a result of the FHA inside containment reanalysis are somewhat higher then previously approved, they still remain well below the GDC-19 limits, therefore, the proposed change does not involve a significant reduction in a margin of safety.

The margin of safety for core alteration events other than the FHA remains the same as the original licensing analyses, since the proposed change does not impact the TS requirements for systems needed to prevent or mitigate such core alteration events.

In addition, the editorial corrections have no affect on associated equipment, components, structures or systems, and their operation or margin of safety.

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

Based on the above evaluation, PG&E concludes that the proposed change presents no significant hazards considerations under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Regulatory Requirements and Guidance

5.2.1 Regulations

10 CFR 100, "Reactor Site Criteria," provides criteria for evaluating the radiological aspects of a proposed site. This includes offsite dose limits at the exclusion area limit and the low population zone limit, which must be met during and following a FHA.

10 CFR 50, Appendix A, GDC 16, Containment Design, requires that reactor containment and associated systems shall be provided to establish essentially a leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the contaminated design conditions important to safety are not exceeded for as long as the postulated accident conditions require.

10 CFR 50, Appendix A, GDC 19, Control Room, requires that a control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant

accidents. Adequate radiation protection should be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. Equipment at appropriate locations outside the control room shall be provided (1) with a design capability for prompt hot shutdown of the reactor, including necessary instrumentation and controls to maintain the unit in a safe condition during hot shutdown, and (2) with a potential capability for subsequent cold shutdown of the reactor through the use of suitable procedures.

10 CFR 50, Appendix A, GDC 54, Piping Systems Penetrating Containment, requires that piping systems penetrating primary reactor containment shall be provided with leak detection, isolation and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance of safety of isolating these piping systems. Such piping systems shall be designed with the capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits.

10 CFR 50, Appendix A, GDC 56, Primary Containment Isolation, describes the isolation provisions that must be provided for lines that connect directly to the containment atmosphere and which penetrate primary reactor containment unless it can be demonstrated that the isolation provisions for a specific class of lines are acceptable on some other defined basis.

10 CFR 50, Appendix A, 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 assure adequate safety under normal and postulated accident conditions.

5.2.2 Design Bases (Final Safety Analysis Report Updated (FSARU)

FSARU Section 15.3.3, " Inadvertent Loading of a Fuel Assembly into an Improper Position," analyzes potential fuel and core loading errors such as inadvertently loading one or more fuel assemblies into improper positions, loading a fuel rod during manufacture with one or more pellets of the wrong enrichment, or loading a full fuel assembly during manufacture with pellets of the wrong enrichment that will lead to increased heat fluxes if the error results in placing fuel in core positions calling for fuel of lesser enrichment. The inadvertent loading of one or more fuel assemblies requiring burnable poison rods into a new core without burnable poison rods is also included among possible core

loading errors. The conclusion of this analysis is that no fuel damage or release of radiation is the result of this accident.

FSARU Section 15.4.5, "Fuel Handling Accident" – DCPP design basis FHA is defined as the dropping of a spent fuel assembly in the FHB or inside containment. Both analyses assume the rupture of the cladding of all the fuel rods in the dropped assembly. FSARU Section 15.4.5.2.1, which will be revised per the reanalysis of the FHA inside containment, discusses the radiological consequences of the postulated FHA inside containment.

5.2.3 Approved Methodologies

NUREG-0800, "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 FHAs. Although DCPP is not subject to this NUREG, its guidance is used as a point of comparison in this submittal.

RG 1.25 (Reference 8) is the NRC guidance that describes a method acceptable to the NRC staff for licensee evaluation of the potential radiological consequences of a FHA. 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 the FHA and GDC 61, with respect to the appropriate containment, confinement, and filtering systems.

U.S. NRC RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," issued in July 2000, provides new guidance on acceptable applications of alternative source terms. In Appendix B of this RG, guidance is provided on evaluating the radiological consequences of a FHA and acceptable overall decontamination factors of 200 if the water depth above the damaged fuel is greater than 23 feet. This decontamination factor is a relaxation over previous guidance and is used in the new FHA analysis in support of the proposed TS changes.

The method of analysis used for re-evaluating the potential radiological consequences of the postulated FHA inside containment is consistent with RG 1.25, ICRP Publication 30, RG 1.183, GDC 61, and the guidance in NUREG-0800, Section 15.7.4. The calculated exclusion area boundary and low population zone boundary doses are within the NUREG-0800 criteria of 6 rem to the whole body and 75 rem to the thyroid. In addition, the calculated control room doses are within the GDC-19 limits of 5 rem to the whole body and 30 rem to the thyroid. The analysis presented in Section 15.4.5 of the FSARU, as will be revised per the new FHA

analysis, demonstrates the adequacy of the plant design features and the plant procedures for the mitigation of the radiological consequences of postulated FHAs.

5.2.4 Conclusion

In conclusion, based on the considerations discussed above, (1) there is 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 the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

PG&E has evaluated the proposed amendment and has determined that the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

7.1 References

1. Industry/Technical Specification Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-51, Revision 2, "Revise containment requirements during handling irradiated fuel and core alterations," dated October 1, 1999.
2. LA 135/135, Conversion to Improved Technical Specifications for Diablo Canyon Power Plant, Units 1 and 2 – Amendment No. 135 to Facility Operating License Nos. DPR-80 and DPR-82 (TAC Nos. M98984 and M98985), May 18, 1999.
3. LA 163/165, Diablo Canyon Power Plant, Units 1 and 2 – Issuance of Amendments Re: Control Room, Auxiliary Building, and Fuel Handling Building Ventilation Systems (TAC NOS. MB8485 and MB8486), dated February 27, 2004.
4. LA 155/155, Diablo Canyon Nuclear Power Plant, Units 1 and 2 – Issuance of Amendment Re: Revisions of Technical Specification, Section 3.9.4, Containment Penetrations, dated October 21, 2002.

5. NUREG-0800, Standard Review Plan (SRP), Section 15.7.4, "Radiological Consequences of Fuel Handling Accidents."
6. RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," issued in July 2000.
7. NUMARC 93-01, Revision 2, Section 11.0, dated February 22, 2000, Section 11.3.6, "Assessment Methods for Shutdown Conditions."
8. Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," March 1972.
9. LA 140/140, Diablo Canyon Nuclear Power Plant, Units 1 and 2 – Issuance of Amendment Re: Main Feedwater System (TAC Nos. MA3407 and MA3408), February 22, 2000.

7.2 Precedence

1. Amendment 102 was approved for the Perry Nuclear Power Plant on March 11, 1999, to revise Technical Specification requirements for handling irradiated fuel in the Primary Containment and Fuel Handling Building, and selected specifications associated with performing core alterations.

2. Amendments 241 and 121 were approved for Beaver Valley Power Station Units 1 and 2 on August 30, 2001; to revise Technical Specifications associated with the requirements for handling irradiated fuel assemblies in the reactor containment and fuel building. The amendments selectively adopted the alternate source term for the fuel handling accident.

3. Amendments 198 and 191 were approved for Catawba Nuclear Station Units 1 and 2 on April 23, 2002; to revise Technical Specifications to incorporate NRC-approved Technical Specification Task Force (TSTF) Traveler TSTF-51, "Revise containment requirements during handling irradiated fuel and core alterations," Revision 2. The amendments selectively adopted the alternate source term for the fuel handling accident.

4. Amendments 184 and 127 were approved for St. Lucie Units 1 and 2 on August 30, 2002; to revise Technical Specifications for certain systems (containment penetrations, spent fuel pool and shield building ventilation, and containment isolation) to require operability only during movement of recently irradiated fuel.

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

Changes are proposed to the following Technical Specifications:

1. Specification 3.1.7, Rod Position Indication
2. Specification 3.3.1, RTS Instrumentation
3. Specification 3.3.6,Containment Ventilation Isolation Instrumentation
4. Specification 3.3.7, Control Room Ventilation System (CRVS) Actuation System
5. Specification 3.3.8, Fuel Building Ventilation System (FBVS) Actuation Instrumentation
6. Specification 3.4.16, Reactor Coolant System Specific Activity
7. Specification 3.7.3, Main Feedwater Isolation Valve (MFIVs), Main Feedwater Regulating Valves (MFRVs), MFRV Bypass Valves, and Main Feedwater Pump (MFWP) Turbine Stop Valves, Specification
8. Specification 3.7.10, Control Room Ventilation System (CRVS)
9. Specification 3.7.13, Fuel Handling Building Ventilation System (FHBVS)
10. Specification 3.8.2, AC Sources – Shutdown
11. Specification 3.8.5, DC Sources – Shutdown
12. Specification 3.8.8, Inverters – Shutdown
13. Specification 3.8.10, Distribution Systems – Shutdown

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Rod Position Indication

LCO 3.1.7 The Digital Rod Position Indication (DRPI) System and the Demand Position Indication System shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each inoperable rod position indicator and each demand position indicator.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One DRPI per group inoperable for one or more groups.	A.1 Verify the position of the rods with inoperable position indicators indirectly by using core power distribution measurement information. OR	Once per 8 hours
	A.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
B. More than one DRPI per group inoperable.	B.1 Place the control rods under manual control AND	Immediately
	B.2 Monitor and record reactor coolant system Tavg. AND	Once per 1 hour (continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.6	----------NOTE---------- Not required to be performed until 72 hours after THERMAL POWER ≥ 75% RTP. ---------- Calibrate excore channels to agree with incore power distribution measurements.	92 EFPD
SR 3.3.1.7	----------NOTE---------- ~~3.~~1. Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. ~~4.~~2. For source range instrumentation, this Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ---------- Perform COT.	92 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Only applicable during ~~CORE ALTERATIONS~~ ~~or~~ movement of recently irradiated fuel assemblies within containment. ---------- Required automatic actuation train inoperable. OR Required radiation monitoring channel inoperable.	C.1 Place and maintain containment ventilation valves in closed position. OR C.2 Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment ventilation isolation valves made inoperable by isolation instrumentation.	Immediately Immediately

Table 3.3.6-1 (page 1 of 1)

Containment Ventilation Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Not used				
2. Automatic Actuation Logic and Actuation Relays	1, 2, 3, 4	2 trains	SR 3.3.6.2 SR 3.3.6.3 SR 3.3.6.5	NA
	(a) ~~and (b)~~	1 train	SR 3.3.6.2 SR 3.3.6.3 SR 3.3.6.5	NA
3. Containment Purge Radiation Gaseous and Particulate	1, 2, 3, 4	2	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7 SR 3.3.6.8	Per ODCM
	~~(a) and (b)~~(a)	1	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7 SR 3.3.6.8	Per ODCM
4. Containment Isolation-SI	Refer to LCO 3.3.2, "ESFAS Instrumentation," Functions 1 and 3, for all initiation functions and requirements.			

~~(a) During CORE ALTERATIONS~~

(b~~a~~) During movement of recently irradiated fuel assemblies within containment.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time for Condition A or B not met during movement of recently irradiated fuel assemblies.	~~D.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ D.12 Suspend movement of recently irradiated fuel assemblies.	~~Immediately~~ Immediately
E. Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.	E.1 Initiate action to restore one CRVS train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.7-1 to determine which SRs apply for each CRVS Actuation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.7.2	Perform CFT.	92 days
SR 3.3.7.3	Perform ACTUATION LOGIC TEST.	92 days
SR 3.3.7.4	Perform MASTER RELAY TEST.	92 days
SR 3.3.7.5	Perform SLAVE RELAY TEST.	92 days
SR 3.3.7.6	----------NOTE---------- Verification of setpoint is not required. --- Perform TADOT.	18 months
SR 3.3.7.7	Perform CHANNEL CALIBRATION	18 months

Table 3.3.7-1 (page 1 of 1)

CRVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1, 2, 3, 4, 5, 6, and (a)	2 trains	SR 3.3.7.6	NA
2. Automatic Actuation Relays	1, 2, 3, 4, 5, 6, and (a)	2 trains	SR 3.3.7.3 SR 3.3.7.4 SR 3.3.7.5	NA
3. Control Room Radiation Atmosphere Air Intakes	1, 2, 3, 4, 5, 6, and (a)	2	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.7	Per ODCM
4. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

(a) During movement of recently irradiated fuel assemblies.

3.3 INSTRUMENTATION

3.3.8 Fuel Building Ventilation System (FBVS) Actuation Instrumentation

LCO 3.3.8 The FBVS actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.8-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one channel or train inoperable.	A.1.1	Place and maintain one FBVS train in the Iodine Removal mode.	Immediately
	AND		
	A.1.2.1	Install an appropriate portable continuous monitor with the same alarm setpoint.	Immediately
		OR	
	A.1.2.2	Station an individual qualified in radiation protection procedures with a dose rate monitoring device in the spent fuel pool area.	Immediately
	AND		
	A.1.3	Restore the inoperable monitors to OPERABLE status.	30 days
B. Required Action and associated Completion Time for Condition A not met or, two manual channels in-operable.	B.1	Suspend movement of recently irradiated fuel assemblies in the fuel building.	Immediately

Table 3.3.8-1 (page 1 of 1)

FBACS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	(a)	2	SR 3.3.8.4	NA
2. Fuel Handling Building Radiation				
a. Spent Fuel Pool	(a)	1	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.5	Per ODCM
b. New Fuel Storage Vault	(a)	1	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.5	Per ODCM

(a) During movement of recently irradiated fuel assemblies in the fuel handling building.

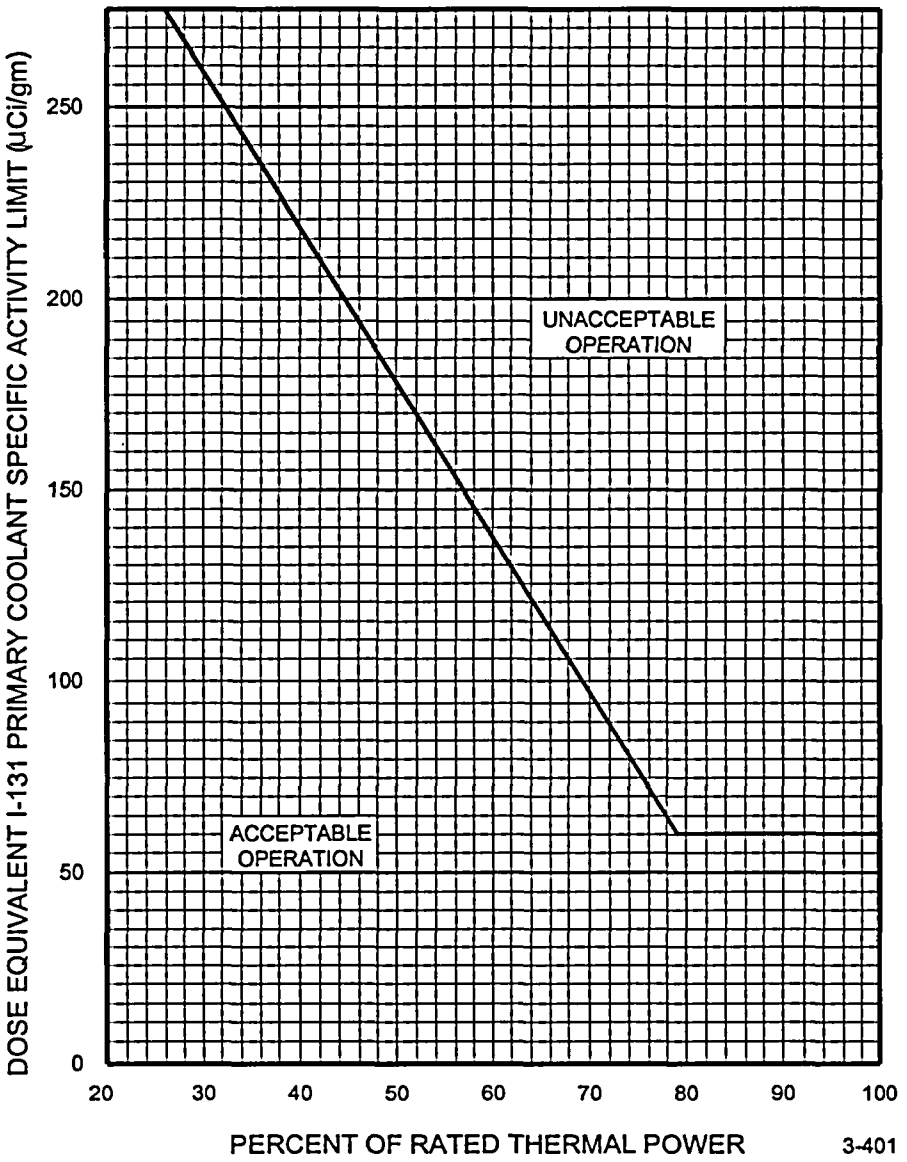

Figure 3.4.16-1

DOSE EQUIVALENT I-131 REACTOR COOLANT SPECIFIC ACTIVITY LIMIT VERSUS PERCENT OF RATED THERMAL POWER WITH THE REACTOR COOLANT SPECIFIC ACTIVITY > 1 µCI/GRAM DOSE EQUIVALENT I-131.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.3.3	Verify each MFIV, MFRV, MFRV bypass valve, and MFWP turbine stop valve actuates to the closed position on an actual or simulated actuation signal.	24 months
SR 3.7.3.4	Verify the closure time of each MFWP turbine stop valve is ≤ 1 second.	At each COLD SHUTDOWN, but not more frequently than once per 92 days.

3.7 PLANT SYSTEMS

3.7.10 Control Room Ventilation System (CRVS)

LCO 3.7.10 Two CRVS trains shall be OPERABLE.

---NOTE---
The Control Room boundary may be opened intermittently under administrative controls.

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

ACTIONS

---NOTE---
ACTIONS apply simultaneously to both units.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRVS train inoperable.	A.1 Restore CRVS train to OPERABLE status.	7 days
B. Two CRVS trains inoperable due to inoperable control room boundary in MODE 1, 2, 3, or 4.	B.1 Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

(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 recently irradiated fuel assemblies.	D.1.1 Place OPERABLE CRVS train in pressurization mode. AND	Immediately
	D.1.2 Verify that the OPERABLE CRVS train is capable of being powered by an OPERABLE emergency power source. OR	Immediately
	~~D.2.1 Suspend CORE ALTERATIONS~~ ~~AND~~	~~Immediately~~
	D.2.~~2~~ Suspend movement of recently irradiated fuel assemblies.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two CRVS trains inoperable in MODE 5 OR 6, or during movement of recently irradiated fuel assemblies.	~~E.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ E.~~2~~1 Suspend movement of recently irradiated fuel assemblies.	~~Immediately~~ Immediately
F. Two CRVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CRVS train for ≥ 15 minutes.	31 days
SR 3.7.10.2	Verify that each CRVS redundant fan is aligned to receive electrical power from a separate OPERABLE vital bus.	31 days
SR 3.7.10.3	Perform required CRVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP
SR 3.7.10.4	Verify each CRVS train automatically switches into the pressurization mode of operation on an actual or simulated actuation signal.	24 months
SR 3.7.10.5	Verify one CRVS train can maintain a positive pressure of ≥ 0.125 inches water gauge, relative to the outside atmosphere during the pressurization mode of operation.	24 months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.13 Fuel Handling Building Ventilation System (FHBVS)

LCO 3.7.13 Two FHBVS trains shall be OPERABLE.

APPLICABILITY: During movement of recently irradiated fuel assemblies in the fuel handling building.

----------NOTE----------
LCO 3.0.3 is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One FHBVS train inoperable.	A.1 Restore FHBVS train to OPERABLE status.	Immediately
B. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the fuel building.	B.1 Place the OPERABLE FHBVS train in operation and verify that it is capable of being powered from an OPERABLE emergency power source. OR B.2 Suspend movement of recently irradiated fuel assemblies in the fuel handling building.	Immediately Immediately
C. Two FHBVS trains inoperable during movement of recently irradiated fuel assemblies in the fuel building.	C.1 Suspend movement of recently irradiated fuel assemblies in the fuel handling building.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems—Shutdown";

b. One diesel generator (DG) capable of supplying the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10; and

c. One supply train of the diesel fuel oil (DFO) transfer system.

APPLICABILITY: MODES 5 and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required Class 1E AC electrical power distribution subsystem de-energized as a result of Condition A. ----------	
	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of recently irradiated fuel assemblies.	Immediately
	AND	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
		AND	
	A.2.4	Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. The required DG inoperable.	B.1	Suspend CORE ALTERATIONS.	Immediately
OR	AND		
The required supply train of the DFO transfer system inoperable.	B.2	Suspend movement of recently irradiated fuel assemblies.	Immediately
	AND		
	B.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND		
	B.4	Initiate action to restore required DG to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources-Shutdown

LCO 3.8.5 The Class 1E DC electrical power subsystem shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems-Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1	Declare affected required feature(s) inoperable.	Immediately
	OR		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
		AND	
	A.2.2	Suspend movement of recently irradiated fuel assemblies.	Immediately
		AND	
	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
		AND	
	A.2.4	Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters-Shutdown

LCO 3.8.8 The Class 1E UPS Inverters shall be OPERABLE to support the onsite Class 1E 120 VAC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems-Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required inverters inoperable.	A.1	Declare affected required feature(s) inoperable.	Immediately
	OR		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
		AND	
	A.2.2	Suspend movement of recently irradiated fuel assemblies.	Immediately
		AND	
	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
		AND	
	A.2.4	Initiate action to restore required inverters to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems-Shutdown

LCO 3.8.10 The necessary portion of the Class 1E AC, DC, and 120 VAC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required AC, DC, or 120 VAC vital bus electrical power distribution subsystems inoperable.	A.1	Declare associated supported required feature(s) inoperable.	Immediately
	OR		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
		AND	
	A.2.2	Suspend movement of recently irradiated fuel assemblies.	Immediately
		AND	
	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
		AND	

(continued)

ENCLOSURE 3

PROPOSED TECHNICAL SPECIFICATION CHANGES RETYPED

Remove Pages	Insert Pages
3.1-13	3.1-13
3.3-9	3.3-9
3.3-44	3.3-44
3.3-46	3.3-46
3.3-48	3.3-48
3.3-49	3.3-49
3.3-50	3.3-50
3.3-52	3.3-52
3.4-37	3.4-37
3.7-8	3.7-7a
3.7-18	3.7-18
3.7-18a	3.7-18a
3.7-19	3.7-19
3.7-23	3.7-23
3.8-11	3.8-11
3.8-12	3.8-12
3.8-21	3.8-21
3.8-27	3.8-27
3.8-31	3.8-31

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Rod Position Indication

LCO 3.1.7 The Digital Rod Position Indication (DRPI) System and the Demand Position Indication System shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each inoperable rod position indicator and each demand position indicator.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One DRPI per group inoperable for one or more groups.	A.1	Verify the position of the rods with inoperable position indicators indirectly by using core power distribution measurement information.	Once per 8 hours
	OR		
	A.2	Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
B. More than one DRPI per group inoperable.	B.1	Place the control rods under manual control	Immediately
	AND		
	B.2	Monitor and record reactor coolant system Tavg.	Once per 1 hour
	AND		(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.6	----------NOTE---------- Not required to be performed until 72 hours after THERMAL POWER ≥ 75% RTP. ---------- Calibrate excore channels to agree with incore power distribution measurements.	92 EFPD
SR 3.3.1.7	----------NOTE---------- 1. Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. 2. For source range instrumentation, this Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ---------- Perform COT.	92 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Only applicable during movement of recently irradiated fuel assemblies within containment. ---------- Required automatic actuation train inoperable. OR Required radiation monitoring channel inoperable.	C.1 Place and maintain containment ventilation valves in closed position. OR C.2 Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment ventilation isolation valves made inoperable by isolation instrumentation.	Immediately Immediately

Table 3.3.6-1 (page 1 of 1)

Containment Ventilation Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Not used				
2. Automatic Actuation Logic and Actuation Relays	1, 2, 3, 4	2 trains	SR 3.3.6.2 SR 3.3.6.3 SR 3.3.6.5	NA
	(a)	1 train	SR 3.3.6.2 SR 3.3.6.3 SR 3.3.6.5	NA
3. Containment Purge Radiation Gaseous and Particulate	1, 2, 3, 4	2	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7 SR 3.3.6.8	Per ODCM
	(a)	1	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7 SR 3.3.6.8	Per ODCM
4. Containment Isolation-SI	Refer to LCO 3.3.2, "ESFAS Instrumentation," Functions 1 and 3, for all initiation functions and requirements.			

(a) During movement of recently irradiated fuel assemblies within containment.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time for Condition A or B not met during movement of recently irradiated fuel assemblies.	D.1 Suspend movement of recently irradiated fuel assemblies.	Immediately
E. Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.	E.1 Initiate action to restore one CRVS train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.7-1 to determine which SRs apply for each CRVS Actuation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.7.2	Perform CFT.	92 days
SR 3.3.7.3	Perform ACTUATION LOGIC TEST.	92 days
SR 3.3.7.4	Perform MASTER RELAY TEST.	92 days
SR 3.3.7.5	Perform SLAVE RELAY TEST.	92 days
SR 3.3.7.6	----------NOTE---------- Verification of setpoint is not required. --- Perform TADOT.	18 months
SR 3.3.7.7	Perform CHANNEL CALIBRATION	18 months

Table 3.3.7-1 (page 1 of 1)

CRVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1, 2, 3, 4, 5, 6, and (a)	2 trains	SR 3.3.7.6	NA
2. Automatic Actuation Relays	1, 2, 3, 4, 5, 6, and (a)	2 trains	SR 3.3.7.3 SR 3.3.7.4 SR 3.3.7.5	NA
3. Control Room Radiation Atmosphere Air Intakes	1, 2, 3, 4, 5, 6, and (a)	2	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.7	Per ODCM
4. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

(a) During movement of recently irradiated fuel assemblies.

3.3 INSTRUMENTATION

3.3.8 Fuel Building Ventilation System (FBVS) Actuation Instrumentation

LCO 3.3.8 The FBVS actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.8-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel or train inoperable.	A.1.1 Place and maintain one FBVS train in the Iodine Removal mode.	Immediately
	AND	
	A.1.2.1 Install an appropriate portable continuous monitor with the same alarm setpoint.	Immediately
	OR	
	A.1.2.2 Station an individual qualified in radiation protection procedures with a dose rate monitoring device in the spent fuel pool area.	Immediately
	AND	
	A.1.3 Restore the inoperable monitors to OPERABLE status.	30 days
B. Required Action and associated Completion Time for Condition A not met or, two manual channels inoperable.	B.1 Suspend movement of recently irradiated fuel assemblies in the fuel building.	Immediately

Table 3.3.8-1 (page 1 of 1)

FBACS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	(a)	2	SR 3.3.8.4	NA
2. Fuel Handling Building Radiation				
a. Spent Fuel Pool	(a)	1	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.5	Per ODCM
b. New Fuel Storage Vault	(a)	1	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.5	Per ODCM

(a) During movement of recently irradiated fuel assemblies in the fuel handling building.

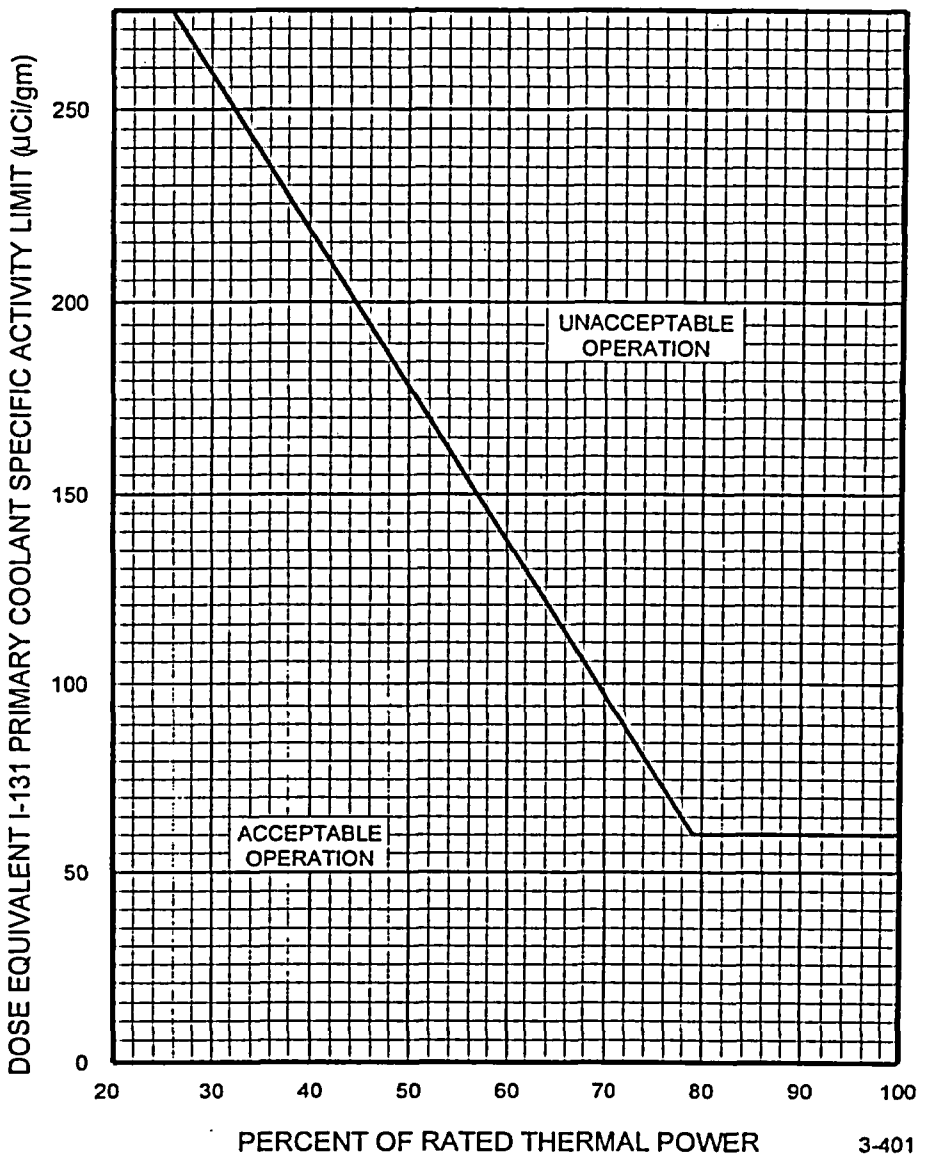

Figure 3.4.16-1

DOSE EQUIVALENT I-131 REACTOR COOLANT SPECIFIC ACTIVITY LIMIT VERSUS PERCENT OF RATED THERMAL POWER WITH THE REACTOR COOLANT SPECIFIC ACTIVITY > 1 µCI/GRAM DOSE EQUIVALENT I-131.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.3.3	Verify each MFIV, MFRV, MFRV bypass valve, and MFWP turbine stop valve actuates to the closed position on an actual or simulated actuation signal.	24 months
SR 3.7.3.4	Verify the closure time of each MFWP turbine stop valve is ≤ 1 second.	At each COLD SHUTDOWN, but not more frequently than once per 92 days.

3.7 PLANT SYSTEMS

3.7.10 Control Room Ventilation System (CRVS)

LCO 3.7.10 Two CRVS trains shall be OPERABLE.

----------NOTE----------
The Control Room boundary may be opened intermittently under administrative controls.

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

ACTIONS

----------NOTE----------
ACTIONS apply simultaneously to both units.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRVS train inoperable.	A.1 Restore CRVS train to OPERABLE status.	7 days
B. Two CRVS trains inoperable due to inoperable control room boundary in MODE 1, 2, 3, or 4.	B.1 Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

(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 recently irradiated fuel assemblies.	D.1.1	Place OPERABLE CRVS train in pressurization mode. AND	Immediately
	D.1.2	Verify that the OPERABLE CRVS train is capable of being powered by an OPERABLE emergency power source. OR	Immediately
	D.2	Suspend movement of recently irradiated fuel assemblies.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two CRVS trains inoperable in MODE 5 OR 6, or during movement of recently irradiated fuel assemblies.	E.1 Suspend movement of recently irradiated fuel assemblies.	Immediately
F. Two CRVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CRVS train for ≥ 15 minutes.	31 days
SR 3.7.10.2	Verify that each CRVS redundant fan is aligned to receive electrical power from a separate OPERABLE vital bus.	31 days
SR 3.7.10.3	Perform required CRVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP
SR 3.7.10.4	Verify each CRVS train automatically switches into the pressurization mode of operation on an actual or simulated actuation signal.	24 months
SR 3.7.10.5	Verify one CRVS train can maintain a positive pressure of ≥ 0.125 inches water gauge, relative to the outside atmosphere during the pressurization mode of operation.	24 months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.13 Fuel Handling Building Ventilation System (FHBVS)

LCO 3.7.13 Two FHBVS trains shall be OPERABLE.

APPLICABILITY: During movement of recently irradiated fuel assemblies in the fuel handling building.

---NOTE---
LCO 3.0.3 is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One FHBVS train inoperable.	A.1 Restore FHBVS train to OPERABLE status.	Immediately
B. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the fuel building.	B.1 Place the OPERABLE FHBVS train in operation and verify that it is capable of being powered from an OPERABLE emergency power source. OR B.2 Suspend movement of recently irradiated fuel assemblies in the fuel handling building.	Immediately Immediately
C. Two FHBVS trains inoperable during movement of recently irradiated fuel assemblies in the fuel building.	C.1 Suspend movement of recently irradiated fuel assemblies in the fuel handling building.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems—Shutdown";

b. One diesel generator (DG) capable of supplying the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10; and

c. One supply train of the diesel fuel oil (DFO) transfer system.

APPLICABILITY: MODES 5 and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required Class 1E AC electrical power distribution subsystem de-energized as a result of Condition A. ----------	
	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of recently irradiated fuel assemblies.	Immediately
	AND	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
		AND	
	A.2.4	Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. The required DG inoperable.	B.1	Suspend CORE ALTERATIONS.	Immediately
OR	AND		
The required supply train of the DFO transfer system inoperable.	B.2	Suspend movement of recently irradiated fuel assemblies.	Immediately
	AND		
	B.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND		
	B.4	Initiate action to restore required DG to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources-Shutdown

LCO 3.8.5 The Class 1E DC electrical power subsystem shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems-Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1	Declare affected required feature(s) inoperable.	Immediately
	OR		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
		AND	
	A.2.2	Suspend movement of recently irradiated fuel assemblies.	Immediately
		AND	
	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
		AND	
	A.2.4	Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters-Shutdown

LCO 3.8.8 The Class 1E UPS Inverters shall be OPERABLE to support the onsite Class 1E 120 VAC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems-Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required inverters inoperable.	A.1	Declare affected required feature(s) inoperable.	Immediately
	OR		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
		AND	
	A.2.2	Suspend movement of recently irradiated fuel assemblies.	Immediately
		AND	
	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
		AND	
	A.2.4	Initiate action to restore required inverters to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems-Shutdown

LCO 3.8.10 The necessary portion of the Class 1E AC, DC, and 120 VAC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required AC, DC, or 120 VAC vital bus electrical power distribution subsystems inoperable.	A.1	Declare associated supported required feature(s) inoperable.	Immediately
	OR		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
		AND	
	A.2.2	Suspend movement of recently irradiated fuel assemblies.	Immediately
		AND	
	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
		AND	

(continued)

ENCLOSURE 4

MARKED UP CHANGES TO TECHNICAL SPECIFICATION BASES PAGES FOR INFORMATION ONLY

BASES

APPLICABLE SAFETY ANALYSES (continued)

They are also the primary means for automatically isolating containment in the event of a fuel handling accident or any other source within containment during shutdown. Containment isolation in turn ensures meeting the containment leakage rate assumptions of the safety analyses, and ensures that the calculated accidental offsite radiological doses are below 10 CFR 100 (Ref. 1) limits. Due to radioactive decay, containment is only required to isolate during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 100 hours.)

The containment ventilation isolation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requirements ensure that the instrumentation necessary to initiate Containment Ventilation Isolation, listed in Table 3.3.6-1, is OPERABLE.

1. Manual Initiation - Not used

2. Automatic Actuation Logic and Actuation Relays

   The LCO requires two trains of Automatic Actuation Logic and Actuation Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.

   Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b, SI, and ESFAS Function 3.a, Containment Phase A Isolation. The applicable MODES and specified conditions for the Containment Ventilation Isolation portion of these Functions are different and less restrictive than those for their Phase A isolation and SI roles. If one or more of the SI or Phase A isolation Functions becomes inoperable in such a manner that only the Containment Ventilation Isolation Function is affected, the Conditions applicable to their SI and Phase A isolation Functions need not be entered. The less restrictive Actions specified for inoperability of the Containment Ventilation Isolation Functions specify sufficient compensatory measures for this case.

3. Containment Radiation

   The LCO specifies two required channels of radiation monitors to ensure that the radiation monitoring instrumentation necessary to initiate Containment ventilation Isolation remains OPERABLE in MODES 1-4.

   The LCO only requires one monitor to be OPERABLE ~~during CORE ALTERATIONS or~~ during movement of recently irradiated fuel assemblies in containment. In order to provide the CVI function under these conditions without placing the entire SSPS in service, an alternate circuit is provided to power the output relays and provide logic actuation signals independent of the SSPS.

(continued)

BASES

LCO (continued)

3. Containment Radiation (continued)

This circuit also disconnects the normal logic and actuation paths such that only high radiation signals may generate a CVI.

4. Containment Isolation - SI

Refer to LCO 3.3.2, Function 1 and 3, for all initiating Functions and requirements.

APPLICABILITY

The Automatic Actuation Logic and Actuation Relays, Containment Isolation-Phase A, and Containment Radiation Functions are required OPERABLE in MODES 1, 2, 3, and 4, and during ~~CORE ALTERATIONS or~~ movement of recently irradiated fuel assemblies within containment. Under these conditions, the potential exists for an accident that could release significant fission product radioactivity into containment. Therefore, the containment ventilation isolation instrumentation must be OPERABLE in these MODES.

While in MODES 5 and 6 without fuel handling in progress, the containment ventilation isolation instrumentation need not be OPERABLE since the potential for radioactive releases is minimized and operator action is sufficient to ensure post accident offsite doses are maintained within the limits of Reference 1.

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a CFT and/or CHANNEL CALIBRATION, when the process instrumentation is set up for adjustment to bring it within specification. Drift can also be observed during a CHANNEL CHECK or CFT and if observed would prompt action to correct the discrepancy. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.6-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the failure of one Containment ventilation Isolation radiation monitor channel. The 4 hours allowed to restore the affected channel is justified by the low likelihood

(continued)

BASES (continued)

ACTIONS
~~SURVEILLANCE REQUIREMENTS~~

A Note states that Condition C is applicable during ~~CORE ALTERATIONS and during~~ movement of recently irradiated fuel assemblies within containment.

~~A Note has been added to the SR Table to clarify that Table 3.3.6-1 determines which SRs apply to which Containment Ventilation Isolation Functions.~~

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.6-1 determines which SRs apply to which Containment Ventilation Isolation Functions.

SR 3.3.6.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.6.2

SR 3.3.6.2 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. This test is performed every 31 days on a STAGGERED TEST BASIS. The Surveillance interval is acceptable based on instrument reliability and industry operating experience.

(continued)

BASES

BACKGROUND (continued)

The CRVS has two additional manually selected emergency operating modes; smoke removal and recirculation. Neither of these modes are required for the CRVS to be OPERABLE, but they are useful for certain non-DBA circumstances.

APPLICABLE SAFETY ANALYSES

The control room must be kept habitable for the operators stationed there during accident recovery and post accident operations.

The CRVS acts to terminate the supply of unfiltered outside air to the control room, initiate filtration, and pressurize the control room. These actions are necessary to ensure the control room is kept habitable for the operators stationed there during accident recovery and post accident operations by minimizing the radiation exposure of control room personnel.

In MODES 1, 2, 3, and 4, the radiation monitor actuation of the CRVS is a backup for the Phase A signal actuation. This ensures initiation of the CRVS during a loss of coolant accident or steam generator tube rupture involving a release of radioactive materials.

The radiation monitor actuation of the CRVS in MODES 5 and 6, during movement of recently irradiated fuel assemblies (i.e., fuel that has occupied part of a critical reactor core within the previous 100 hours), is the primary means to ensure control room habitability in the event of a fuel handling or waste gas decay tank rupture accident. The CRVS pressurization system actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requirements ensure that instrumentation necessary to initiate the CRVS pressurization system is OPERABLE.

1. Manual Initiation

   The LCO requires two trains OPERABLE. The operator can initiate the CRVS pressurization mode at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

   The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

2. Automatic Actuation Relays

   The LCO requires two trains of Actuation Relays OPERABLE to ensure that no single random failure can prevent automatic actuation of the pressurization system. Since each unit has one train of Actuation Relays consisting of two sets of actuation logic, each unit must have at least one logic set for both trains to be considered OPERABLE.

(continued)

BASES

LCO (continued)

2. Automatic Actuation Relays (continued)

If one or more of the SI or Phase A functions becomes inoperable in such a manner that only the CRVS function is affected (such as a Phase A Slave Relay output to the CRVS logic), the Conditions applicable to their SI or Phase A functions need not be entered. The less restrictive Actions specified for inoperability of the CRVS Functions specify sufficient compensatory measures for this case.

3. Control Room Radiation Atmosphere Air Intakes

The LCO specifies two required channels of Control Room Normal Intake Radiation Monitors to ensure that the radiation monitoring instrumentation necessary to initiate the CRVS pressurization system remains OPERABLE. One channel consists of two Radiation Monitors per intake, however, only one monitor is necessary for the channel to be OPERABLE.

4. Safety Injection

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

As noted above, a safety injection signal does not directly initiate CRVS pressurization, but a Phase A signal does and Phase A is initiated by SI.

APPLICABILITY

The CRVS Functions must be OPERABLE in MODES 1, 2, 3, 4, and during movement of recently irradiated fuel assemblies. The Functions must also be OPERABLE in MODES 5 and 6 when required for a waste gas decay tank rupture accident, or a fuel handling or core alteration accident to ensure a habitable environment for the control room operators.

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by the unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a CFT and/or CHANNEL CALIBRATION, when the process instrumentation is set up for adjustment to bring it within specification. Drift can also be observed during a CHANNEL CHECK or CFT and if observed would prompt action to correct the discrepancy. If the Trip Setpoint is less conservative than the acceptance criteria specified by the calibration procedure, the instrument must be declared inoperable immediately and the appropriate Condition entered.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2 (continued)

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 and D.2

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met ~~during CORE ALTERATIONS or~~ when recently irradiated fuel assemblies are being moved. Movement of ~~irradiated~~ recently irradiated fuel assemblies ~~and CORE ALTERATIONS~~ must be suspended immediately to reduce the risk of accidents that would require CRVS actuation.

E.1

Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a waste gas decay tank rupture.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.7-1 determines which SRs apply to which CRVS Actuation Functions.

SR 3.3.7.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

(continued)

B 3.3 INSTRUMENTATION

B 3.3.8 Fuel Building Ventilation System (FBVS) Actuation Instrumentation

BASES

BACKGROUND	The FBVS ensures that radioactive materials in the fuel building atmosphere following a fuel handling accident involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 100 hours) are filtered and adsorbed prior to exhausting to the environment. The system is described in the Bases for LCO 3.7.13, "Fuel Handling Building Ventilation System." The system initiates filtered ventilation of the fuel building automatically following receipt of a high radiation signal from the Spent Fuel Pool Monitor or from the New Fuel Storage Vault Monitor. Initiation may also be performed manually as needed from the main control room or fuel handling building. High radiation, from either of the two monitors, provides FBVS initiation. These actions function to prevent exfiltration of contaminated air by initiating filtered ventilation, which imposes a negative pressure on the fuel building.
APPLICABLE SAFETY ANALYSES	The FBVS ensures that radioactive materials in the fuel building atmosphere following a fuel handling accident involving handling recently irradiated fuel are filtered and adsorbed prior to being exhausted to the environment. This action reduces the radioactive content in the fuel building exhaust following a fuel handling accident so that offsite doses remain within the limits specified in 10 CFR 100 (Ref. 1). The FBVS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).
LCO	The LCO requirements ensure that instrumentation necessary to initiate the FBVS is OPERABLE. 1. Manual Initiation The LCO requires two channels OPERABLE. The operator can initiate the FBVS at any time by using either of two switches, one in the control room and another in the fuel handling building. This action will cause actuation of all components in the same manner as any of the automatic actuation signals. The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

(continued)

BASES

LCO (continued)

2. Fuel Handling Building Radiation

The LCO specifies two required Radiation Monitor channels to ensure that the radiation monitoring instrumentation necessary to initiate the FBVS remains OPERABLE.

Only the Trip Setpoint is specified for each FBVS Function in the LCO.

APPLICABILITY

The manual FBVS initiation must be OPERABLE when moving recently irradiated fuel assemblies in the fuel building, to ensure the FBVS operates to remove fission products associated with a fuel handling accident involving handling recently irradiated fuel.

High radiation initiation of the FBVS must be OPERABLE in any MODE during movement of recently irradiated fuel assemblies in the fuel building to ensure automatic initiation of the FBVS when the potential for a fuel handling accident exists. Due to radioactive decay, the FBVS actuation instrumentation is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel.

While in MODES 5 and 6 without fuel handling involving recently irradiated fuel in progress, the FBVS instrumentation need not be OPERABLE since ~~a~~ the limiting fuel handling accident cannot occur.

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a CFT and/or CHANNEL CALIBRATION, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered. Drift can also be observed during a CHANNEL CHECK or CFT and if observed would prompt action to correct the discrepancy.

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.8-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

(continued)

BASES

ACTIONS (continued)

A.1.1, A.1.2.1, A.1.2.2, and A.1.3

Condition A applies to the radiation monitor functions, and the manual function. Condition A applies to the failure of one or more radiation monitor channels, or a single manual channel. If one or more channels or trains are inoperable, movement of recently irradiated fuel may continue for a period of 30 days. If movement of recently irradiated fuel continues, an appropriate portable continuous monitor with the same setpoint, or an individual qualified in radiation protection procedures with a dose rate monitoring device must be in the spent fuel pool area immediately and, one FBVS train must be placed in the Iodine Removal mode of operation immediately. This effectively accomplishes the actuation instrumentation function and places the area in a conservative mode of operation or provides appropriate monitoring for continued fuel movement.

B.1

Condition B applies when the Required Action and associated Completion Time for Condition A has not been met and recently irradiated fuel assemblies are being moved in the fuel building. Movement of recently irradiated fuel assemblies in the fuel building must be suspended immediately to eliminate the potential for events that could require -FBVS actuation.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.8-1 determines which SRs apply to which FBVS Actuation Functions.

SR 3.3.8.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

(continued)

BASES (continued)

APPLICABILITY

In MODES 1, 2, 3, 4, 5, and 6, and during movement of recently irradiated fuel assemblies (i.e., fuel that has occupied part of a critical reactor core within the previous 100 hours) CRVS must be OPERABLE to control operator exposure during and following a DBA or the release from the rupture of an outside waste gas tank.

During movement of recently irradiated fuel assemblies, the CRVS must be OPERABLE to cope with the release from a fuel handling accident involving handling recently irradiated fuel.

CRVS OPERABILITY requires that for MODE 5 and 6 and during movement of recently irradiated fuel assemblies in either unit, when there is only one OPERABLE train of CRVS, the OPERABLE CRVS train must be capable of being powered from an OPERABLE diesel generator that is directly associated with the bus which is energizing the OPERABLE CRVS train. This is an exception to LCO 3.0.6.

ACTIONS

The ACTIONS are modified by a NOTE that states that ACTIONS apply simultaneously to both units. The CRVS is common to both units.

A.1

When one CRVS train is inoperable, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CRVS train is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CRVS train could result in loss of CRVS 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, the CRVS trains cannot perform their intended functions. 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. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the Condition. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24-hour Completion Time is a typical reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

In MODE 1, 2, 3, or 4, if the inoperable CRVS train 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 and ~~, D.2.1, and D.2.2~~

In MODE 5 or 6, or during movement of recently irradiated fuel assemblies, if the inoperable CRVS train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CRVS train in the pressurization 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. If only one CRVS train is OPERABLE, the OPERABLE train must be capable of being powered from an OPERABLE diesel generator that is directly associated with the bus which is energizing the OPERABLE CRVS train. The power requirements for the one OPERABLE CRVS train assures that the ventilation function will not be lost during a fuel handling accident with a subsequent loss of off-site power. This is an exception to LCO 3.0.6.

An alternative to Required Action D.1 is to immediately 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.

(continued)

BASES

ACTIONS (continued)

E.1 ~~and E.2~~

In MODE 5 or 6, or during movement of recently irradiated fuel assemblies, with two CRVS 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.

F.1

If both CRVS trains are inoperable in MODE 1, 2, 3, or 4, for reasons other than an inoperable control room boundary (i.e., Condition B), the CRVS 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

Once actuated due to a fuel handling accident the CRVS must be protected against a single failure. This protection, although not required for immediate accident response, is assured by requiring that a backup power supply be provided as described above in Applicability. This back up is assured via the performance of surveillances that verify the ability to transfer power supplies.

The 31 day procedural verification of the separate vital power supplies for the redundant fans assures system reliability.

SR 3.7.10.1

Standby systems should be checked periodically for ≥ 15 minutes to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month, by initiating, from the control room, flow through the HEPA filter and charcoal adsorber using either redundant set of booster and pressurization supply fans, provides an adequate check of this 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 assures that the emergency power alignment is appropriate for the operating conditions of the plant. With the power supply options available it is appropriate to verify that the redundant fans for each train are aligned to receive power from separate OPERABLE vital buses.

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS
B 3.8.2 AC Sources—Shutdown

BASES

BACKGROUND

A description of the AC sources is provided in the Bases for LCO 3.8.1, "AC Sources — Operating."

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum AC sources during MODES 5 and 6 and during movement of recently irradiated fuel assemblies ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate AC electrical power is provided to mitigate events postulated during shutdown, such as a fuel handling accident involving handling recently irradiated fuel. Due to radioactive decay, AC electrical power is only required to mitigate fuel handling accidents involving recently irradiated fuel (i. e., fuel that has occupied part of a critical reactor core within the previous 100 hours).

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, 3, and 4 have no specific analyses in MODES 5 and 6. Worst case bounding events are deemed not credible in MODES 5 and 6 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.

During MODES 1, 2, 3, and 4, various deviations from the analysis assumptions and design requirements are allowed within the Required Actions. This allowance is in recognition that certain testing and maintenance activities must be conducted, provided an acceptable level of risk is not exceeded. During MODES 5 and 6, performance of a significant number of required testing and maintenance activities is also required. In MODES 5 and 6, the activities are generally planned and administratively controlled. Relaxations from MODE 1, 2, 3, and 4 LCO requirements are acceptable during shutdown modes based on:

a. The fact that time in an outage is limited. This is a risk prudent goal as well as a utility economic consideration.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

b. Requiring appropriate compensatory measures for certain conditions. These may include administrative controls, reliance on systems that do not necessarily meet typical design requirements applied to systems credited in operating MODE analyses, or both.

c. Prudent utility consideration of the risk associated with multiple activities that could affect multiple systems.

d. Maintaining, to the extent practical, the ability to perform required functions (even if not meeting MODE 1, 2, 3, and 4 OPERABILITY requirements) with systems assumed to function during an event.

In the event of an accident during shutdown, this LCO ensures the capability to support systems necessary to avoid immediate difficulty, assuming either a loss of all offsite power or a loss of all onsite diesel generator (DG) power.

The AC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

One offsite circuit capable of supplying the onsite Class 1E power distribution subsystem(s) of LCO 3.8.10, "Distribution Systems — Shutdown," ensures that all required loads are powered from offsite power. An OPERABLE DG, associated with the Class 1E AC electrical power distribution subsystem required to be OPERABLE by LCO 3.8.10, ensures a diverse power source is available to provide electrical power support, assuming a loss of the offsite circuit. Together, OPERABILITY of the required offsite circuit and DG ensures the availability of sufficient AC sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents involving handling recently irradiated fuel).

The qualified offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the Engineered Safety Feature (ESF) bus(es). Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit.

The Unit 1 Offsite Circuit #1 consists of Startup Transformer 1-1 supplied from the immediate access 230 kV Switchyard power source, which feeds Startup Transformer 1-2 through series supply breakers 52VU12 and 52VU14. Startup Transformer 1-2 then supplies power through breaker 52HG15 to each vital bus feeder breaker (Bus F - 52HF14, Bus G - 52HG14, Bus H - 52HH14). The Unit 1 Offsite Circuit #2 is the delayed access 500 kV circuit which becomes available only after opening the motor operated disconnect to the main

(continued)

BASES

LCO (continued)

generator. This circuit consists of Auxiliary Transformer 1-2 supplied from the 500 kV Switchyard through the main bank transformers. Auxiliary Transformer 1-2 supplies power directly to each of the vital bus feeder breakers (Bus F - 52HF13, Bus G - 52HG13, Bus H - 52HH13).

The Unit 2 Offsite Circuit #1 consists of Startup Transformer 2-1 supplied from the immediate access 230 kV Switchyard power source, which feeds Startup Transformer 2-2 through series supply breakers 52VU23 and 52VU24. Startup Transformer 2-2 then supplies power through breaker 52HG15 to each vital bus feeder breaker (Bus F - 52HF14, Bus G - 52HG14, Bus H - 52HH14). The Unit 2 Offsite Circuit #2 is a delayed access circuit which only becomes available after opening the motor operated disconnect to the main generator. This circuit consists of Auxiliary Transformer 2-2 supplied from the 500 kV Switchyard through the main bank transformers. Auxiliary Transformer 2-2 supplies power directly to each of the vital bus feeder breakers (Bus F - 52HF13, Bus G - 52HG13, Bus H -3 52HH13).

The DG must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective ESF bus on detection of bus undervoltage. This sequence must be accomplished within 10 seconds. The DG must be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the ESF buses.

With administrative controls in place, it is acceptable for Class 1E AC electrical power distribution subsystems to be cross tied during shutdown conditions, allowing a single offsite power circuit or a single DG to supply the required Class 1E AC electrical power distribution subsystems.

The two redundant diesel fuel oil transfer pumps supply fuel oil to DG day tanks from either storage tank. One pump is adequate to supply the six DGs operating at full load. Only one train is required to be OPERABLE in MODES 5 or 6.

APPLICABILITY

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of recently irradiated fuel assemblies provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;

b. Systems needed to mitigate a fuel handling accident involving handling recently irradiated fuel are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

(continued)

BASES

APPLICABILITY (continued)

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

ACTIONS

A.1

An offsite circuit would be considered inoperable if it were not available to the required Class 1E bus(es). If two Class 1E AC electrical power distribution subsystems are required by LCO 3.8.10, and one Class 1E AC electrical power distribution subsystem has offsite power available, the remaining Class 1E AC electrical power distribution subsystem may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and recently irradiated fuel movement. By allowing the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.

A.2.1, A.2.2, A.2.3, A.2.4, B.1, B.2, B.3, and B.4

With the offsite circuit not available to all required AC electrical power distribution subsystems , the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend CORE ALTERATIONS, movement of recently irradiated fuel assemblies, and operations involving positive reactivity additions. The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability or the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.5 DC Sources-Shutdown

BASES

BACKGROUND	A description of the DC sources is provided in the Bases for LCO 3.8.4, "DC Sources-Operating."
APPLICABLE SAFETY ANALYSES	The initial conditions of Design Basis Accident and transient analyses in the FSAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume that Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the diesel generators, emergency auxiliaries, and control and switching during all MODES of operation. The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY. The OPERABILITY of the minimum DC electrical power sources during MODES 5 and 6 and during movement of recently irradiated fuel assemblies ensures that: a. The unit can be maintained in the shutdown or refueling condition for extended periods; b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and c. Adequate DC electrical power is provided to mitigate events postulated during shutdown, such as a fuel handling accident involving handling recently irradiated fuel. Due to radioactive decay, DC electrical power is only required to mitigate fuel handling accidents involving recently irradiated fuel (i. e., fuel that has occupied part of a critical reactor core within the previous 100 hours). The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).
LCO	The DC electrical power subsystems, each subsystem consisting of one battery, one battery charger per battery, and the corresponding control equipment and interconnecting class 1E cabling within the subsystem, are required to be OPERABLE to support required trains of the distribution systems required OPERABLE by LCO 3.8.10, "Distribution Systems-Shutdown." An OPERABLE subsystem consists of a DC bus connected to a battery with an OPERABLE battery charger which is fed from an OPERABLE AC vital bus (Ref B.3.8.10).

(continued)

BASES

LCO (continued)

With administrative controls in place, DC buses may be cross-tied when a battery is taken out for maintenance provided that the battery and the Class 1E cross-tie has sufficient capacity and protection for its own loads and the cross-tie loads. The resulting circuit is not required to be single failure resistant. This ensures the availability of sufficient DC electrical power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g. fuel handling accidents involving handling recently irradiated fuel).

APPLICABILITY

The DC electrical power sources required to be OPERABLE in MODES 5 and 6, and during movement of recently irradiated fuel assemblies, provide assurance that:

a. Required features to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;

b. Required features needed to mitigate a fuel handling accident involving handling recently irradiated fuel are available;

c. Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The DC electrical power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.4.

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4

One or more required DC electrical power subsystems may be inoperable provided that the remaining OPERABLE DC electrical power subsystem(s) support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown," and are capable of supporting sufficient systems to allow continuation of CORE ALTERATIONS and recently irradiated fuel movement. By allowing the option to declare affected required features inoperable with the associated DC power source(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCO ACTIONS. A required feature is not affected if sufficient power is provided by the associated DC power source such that the feature is capable of performing its specified safety function(s). An engineering evaluation may be required to determine if a required feature is affected. For

(continued)

BASES

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4 (continued)

example, see references 3 and 4. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of recently irradiated fuel assemblies, and operations involving positive reactivity additions) that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes, including temperature increases when operating with a positive MTC, must also be evaluated to ensure they do not result in a loss of required SDM. Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required DC electrical power subsystems and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

SR 3.8.5.1 requires performance of all Surveillances required by SR 3.8.4.1 through SR 3.8.4.8. Therefore, see the corresponding Bases for LCO 3.8.4 for a discussion of each SR.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of an SR. This note does not except the requirement for the battery to be capable of performing the particular function, just that the capability need not be demonstrated while that source of power is being relied on to meet the LCO.

(continued)

BASES (continued)

REFERENCES

1. FSAR, Chapter 6.
2. FSAR, Chapter 15.
3. DCM S-67, "125V/250V Direct Current System, Section 4.3.1."
4. AR A0456369

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.8 Inverters-Shutdown

BASES

BACKGROUND	A description of the inverters is provided in the Bases for LCO 3.8.7, "Inverters - Operating."
APPLICABLE SAFETY ANALYSES	The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume Engineered Safety Feature systems are OPERABLE. The Class 1E UPS inverters are designed to provide the required capacity, capability, redundancy, and reliability to ensure the availability of necessary power to the Reactor Protective System and Engineered Safety Features Actuation System instrumentation and controls so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. The OPERABILITY of the inverters is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY. The OPERABILITY of the minimum inverters to each 120 VAC vital bus during MODES 5 and 6 ensures that: a. The unit can be maintained in the shutdown or refueling condition for extended periods; b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and c. Adequate power is available to mitigate events postulated during shutdown, such as a fuel handling accident <u>involving handling recently irradiated fuel. Due to radioactive decay, AC and DC inverters are only required to mitigate fuel handling accidents involving recently irradiated fuel (i. e., fuel that has occupied part of a critical reactor core within the previous 100 hours).</u> . The inverters were previously identified as part of the distribution system and, as such, satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).
LCO	This ensures the availability of sufficient inverter power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents <u>involving handling recently irradiated fuel</u>).

(continued)

BASES (continued)

APPLICABILITY

The inverters required to be OPERABLE in MODES 5 and 6 and during movement of recently irradiated fuel assemblies provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core;

b. Systems needed to mitigate a fuel handling accident involving handling recently irradiated fuel are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

Inverter requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.7.

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4

One or more Class 1E UPS inverters may be inoperable provided that the remaining OPERABLE inverters support the Class 1E 120 VAC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown," and are capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, recently irradiated fuel movement, and operations with a potential for positive reactivity additions. By the allowance of the option to declare required features inoperable with the associated Class 1E UPS inverter(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCOs' Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of recently irradiated fuel assemblies, and operations involving positive reactivity additions) that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes, including temperature increases when operating with a positive MTC, must also be evaluated to ensure they do not result in a loss of required SDM..

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B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.10 Distribution Systems - Shutdown

BASES

BACKGROUND

A description of the Class 1E AC, DC, and 120 VAC vital bus electrical power distribution systems is provided in the Bases for LCO 3.8.9, "Distribution Systems - Operating."

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident and transient analyses in the FSAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume Engineered Safety Feature (ESF) systems are OPERABLE. The Class 1E AC, DC, and 120 VAC vital bus electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded.

The OPERABILITY of the Class 1E AC, DC, and 120 VAC vital bus electrical power distribution system is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum Class 1E AC, DC, and 120 VAC vital bus electrical power distribution subsystems during MODES 5 and 6, and during movement of recently irradiated fuel assemblies ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate power is provided to mitigate events postulated during shutdown, such as a fuel handling accident involving handling recently irradiated fuel. Due to radioactive decay, AC electrical power is only required to mitigate fuel handling accidents involving recently irradiated fuel (i. e., fuel that has occupied part of a critical reactor core within the previous 100 hours).

The Class 1E AC, DC, and 120 VAC electrical power distribution systems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. An OPERABLE AC subsystem shall consist of a 4kV vital bus powered from at least one energized offsite power source with the capability of being powered from an OPERABLE DG. The DG may be the DG associated with that bus or, with administrative controls in place, a DG that can be cross-tied (via the startup cross-tie feeder breakers) to another bus. However, credit for this cross-tie capability cannot be taken credit for in those LCOs which specifically require an

(continued)

BASES

LCO (continued)

OPERABLE emergency power source. The latter ensures that the 4 kV bus will be immediately available after a LOOP without operator action. An OPERABLE DC subsystem consists of an OPERABLE DC bus (see B 3.8.5). An OPERABLE Class 1E 120 VAC subsystem consists of a vital 120 VAC bus that is powered by its OPERABLE inverter which is connected to an OPERABLE DC bus per LCO 3.8.8, or one that is powered from its associated vital 120 VAC regulating transformer that is selected to be powered from an OPERABLE AC vital bus. This ensures that the vital 120 VAC bus is capable of supplying either uninterruptable power from its associated inverter, or with administrative controls in place, from its vital 120 VAC regulating transformer after a brief time delay for the DG to load the bus following a LOOP. The 120 VAC regulating transformer must be capable of being energized without any operator action. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the electrical distribution system necessary to support OPERABILITY of required systems, equipment, and components - all specifically addressed in each LCO and implicitly required via the definition of OPERABILITY.

Maintaining these portions of the distribution system energized ensures the availability of sufficient power to operate the unit in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents involving handling recently irradiated fuel).

APPLICABILITY

The AC, DC, and 120 VAC electrical power distribution subsystems required to be OPERABLE in MODES 5 and 6, and during movement of recently irradiated fuel assemblies, provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core;

b. Systems needed to mitigate a fuel handling accident involving handling recently irradiated fuel are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition and refueling condition.

The AC, DC, and 120 VAC vital bus electrical power distribution subsystems requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.9.

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BASES (continued)

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5

Although redundant required features may require redundant subsystems of electrical power distribution systems to be OPERABLE, one OPERABLE distribution subsystem may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and recently irradiated fuel movement. By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the affected distribution subsystem LCO's Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of recently irradiated fuel assemblies, and operations involving positive reactivity additions) that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes, including temperature increases when operating with a positive MTC, must also be evaluated to ensure they do not result in a loss of required SDM.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC, DC, and 120 VAC electrical power distribution subsystems and to continue this action until restoration is accomplished in order to provide the necessary power to the unit safety systems.

Notwithstanding performance of the above conservative Required Actions, a required residual heat removal (RHR) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring RHR inoperable, which results in taking the appropriate RHR actions.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power.

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