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PG&E Letter DCL-07 -114

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 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 07-03
Revision to Technical Specification 3.7.10, "Control Room Ventilation System (CRVS)"

In accordance with 10 CFR 50.90, enclosed is an application for amendment to Facility Operating License Nos. DPR-80 and DPR-82 for Units 1 and 2 of the Diablo Canyon Power Plant, respectively. The enclosed License Amendment Request (LAR) proposes to revise Technical Specification (TS) 3.7.10, "Control Room Ventilation System (CRVS)."

The proposed amendment would modify TS requirements related to control room envelope habitability in accordance with Technical Specification Task Force (TSTF) Traveler number TSTF-448, Revision 3, consistent with the notice published in the *Federal Register* on January 17, 2007, as part of the consolidated line item improvement process.

Enclosure 1 provides a description of the proposed changes, the requested confirmation of applicability, and plant-specific verifications. Enclosure 2 provides the existing TS pages marked up to show the proposed changes. Enclosure 3 provides revised (clean) TS pages. Enclosure 4 provides existing TS Bases pages marked up to show the proposed changes. TS Bases changes are provided for information only, and will be implemented pursuant to TS 5.5.14, "Technical Specifications Bases Control Program," at the time this amendment is implemented.

The changes in this LAR are not required to address an immediate safety concern. Pacific Gas and Electric Company (PG&E) requests approval of this LAR no later than December 31, 2008. PG&E requests the license amendments be made effective upon NRC issuance, to be implemented within 120 days from the date of issuance.

PG&E makes no regulatory commitments (as defined by NEI 99-04) in this letter. This letter includes no revisions to existing regulatory commitments.

A001
A003
NRR

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

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

Executed on December 26, 2007.

Sincerely,

James R. Becker
Vice President – Operations and Station Director

mjr/4557
Enclosures
cc: Gary W. Butner, Acting Branch Chief, California Department of Public Health
Elmo E. Collins, Regional Administrator, NRC Region IV
Michael S. Peck, NRC Senior Resident Inspector
Diablo Distribution
cc/enc: Alan B. Wang, Project Manager, Office of Nuclear Reactor Regulation

EVALUATION

1.0 DESCRIPTION

This letter is a request to amend Operating Licenses DPR-80 and DPR-82 for Units 1 and 2 of the Diablo Canyon Power Plant (DCPP), respectively.

The proposed amendment would modify Technical Specification (TS) requirements related to control room envelope habitability in TS 3.7.10, "Control Room Ventilation System (CRVS)," and TS Section 5.5, "Administrative Controls - Programs."

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

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Pacific Gas and Electric Company (PG&E) has reviewed the safety evaluation dated January 17, 2007, as part of the CLIIP. This review included a review of the NRC staff's evaluation, as well as the supporting information provided to support TSTF-448. PG&E has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to DCPP Units 1 and 2, and justify this amendment for incorporation of the changes to the DCPP TS.

2.2 Optional Changes and Variations

PG&E is not proposing any variations or deviations from the TS changes described in the TSTF-448, Revision 3, or the applicable parts of the NRC staff's model safety evaluation dated January 17, 2007, except as noted below.

DCPP does not have demisters, and does not credit heaters in offsite dose analyses.

A deviation was made to the wording of TS 3.7.10, Required Action B.2. The TSTF-448 wording states, "Verify mitigating actions ensure CRE [control room envelope] occupant exposures to radiological, chemical, and smoke hazards will not exceed limits." This wording implies that there are quantitative limits for chemical and smoke hazards. DCPP does not have quantitative limits for such hazards. No credit is taken for the control room

habitability systems or boundary integrity in meeting hazardous chemical criteria. Smoke hazards are only qualitatively evaluated. The proposed wording reads, "Verify mitigating actions ensure CRE occupant exposures to radiological hazards will not exceed limits, and CRE occupants are protected from smoke and chemical hazards."

In the Applicable Safety Analyses of TS Bases 3.7.10, the discussion of hazardous chemical releases and smoke challenges is clarified by inserting the following:

> "There are no offsite or onsite hazardous chemicals that would pose a credible threat to control room habitability. Consequently, engineered controls for the control room are not required to ensure habitability against a hazardous chemical threat. The amount of CRE unfiltered inleakage is not incorporated into PG&E's hazardous chemical assessment.
>
> The evaluation of a smoke challenge demonstrated that smoke will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels (Ref. 1). The assessment verified that a fire or smoke event anywhere within the plant would not simultaneously render the Hot Shutdown Panel (HSP) and the CRE uninhabitable, nor would it prevent access from the CRE to the HSP in the event remote shutdown is required. No CRVS automatic actuation is required for hazardous chemical releases or smoke and no Surveillance Requirements are required to verify operability in cases of hazardous chemicals or smoke."

This clarification represents the current plant specific design.

The following is being added to the limiting condition of operability (LCO) section of TS Bases 3.7.10 for clarification:

> "In order for the CRVS trains to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs [design basis accidents]. In the event of an inoperable CRE boundary in MODES 1, 2, 3, or 4, mitigating actions are required to ensure CRE occupants are protected from hazardous chemicals and smoke.
>
> DCPP does not have CRVS automatic actuation for hazardous chemicals or smoke. Current practices at DCPP do not utilize

chemicals in sufficient quantity to present a chemical hazard to the control room."

The following is being added to the ACTIONS section of TS Bases 3.7.10:

"The CRE boundary is inoperable if unfiltered inleakage past the CRE boundary can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem whole body or its equivalent to any part of the body).

In the event of an inoperable CRE boundary in MODES 1, 2, 3, or 4, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from potential smoke and chemical hazards. These mitigating actions (i.e., actions that are taken to offset the consequences of the Inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. Actions must be taken to restore the CRE boundary to OPERABLE status within 90 days. The 90-day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90-day Completion Time is a reasonable time to diagnose, plan and possibly repair and test most problems with the CRE boundary."

In the future, if the DCPP design or environment change, new Action B.2 of TS 3.7.10 addresses hazardous chemicals and smoke to assure that appropriate mitigating actions and/or design feature(s) are considered.

Evaluation 1 in Section 3.0 of the model safety evaluation applies to DCPP. DCPP has adopted the CRVS TS LCO Note and Action B of TSTF-287, Revision 5.

Evaluation 4 in Section 3.0 of the model safety evaluation applies to DCPP. DCPP has an existing Condition E, "Two CRVS trains inoperable in MODE 5 OR 6, or during movement of recently irradiated fuel assemblies." It is appropriate to add the new condition, "One or more CRVS trains inoperable due to an inoperable CRE boundary in MODE 5 or 6, or during movement of recently irradiated fuel assemblies," to Condition E using the logical connector "OR" in accordance with the STS writer's guide, TSTF-GG-05-01, "Writer's Guide for Plant-Specific Improved Technical Specifications," dated June 2005.

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

PG&E proposes the following as a license condition to support implementation of the proposed TS changes:

Upon implementation of the amendment adopting TSTF-448, Revision 3, the following shall be considered met:

- determination of CRE unfiltered air inleakage as required by surveillance requirement (SR) 3.7.10.5, in accordance with TS 5.5.18.c.(i),
- the assessment of CRE habitability as required by TS 5.5.18.c.(ii),
- and the measurement of CRE pressure as required by TS 5.5.18.d.

Following implementation:

(a) The first performance of SR 3.7.10.5, in accordance with Specification 5.5.18.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from February 3, 2005, the date of the most recent successful tracer gas test, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.

(b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.18.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from February 3, 2005, the date of the most recent successful tracer gas test, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.18.d, shall be within 24 months, plus the 182 days allowed by SR 3.0.2, as measured from

February 3, 2005, the date of the most recent successful pressure measurement test, or within 182 days if not performed previously.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

PG&E has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the *Federal Register* as part of the CLIIP.

PG&E has concluded that the proposed NSHCD presented in the *Federal Register* notice is applicable to DCPP, and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

4.0 ENVIRONMENTAL CONSIDERATION

PG&E has reviewed the environmental evaluation included in the model safety evaluation dated January 17, 2007, as part of the CLIIP. PG&E has concluded that the staff's findings presented in that evaluation are applicable to DCPP, and the evaluation is hereby incorporated by reference for this application.

Proposed Technical Specification Changes (marked-up)

3.7 PLANT SYSTEMS

3.7.10 Control Room Ventilation System (CRVS)

LCO 3.7.10 Two CRVS trains shall be OPERABLE.

---NOTE---
The ~~C~~control ~~R~~room envelope (CRE) 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 for reasons other than Condition B.	A.1 Restore CRVS train to OPERABLE status.	7 days
B. ~~Two~~ One or more CRVS trains inoperable due to inoperable ~~control room~~CRE boundary in MODE 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological hazards will not exceed limits, and CRE occupants are protected from smoke and chemical hazards. AND B.~~3~~4 Restore ~~control room~~CRE boundary to OPERABLE status.	~~24 hours~~Immediately 24 hours 90 days
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)

NO changes are being made to this page – Provided for Information Only

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 D.1.2 Verify that the OPERABLE CRVS train is capable of being powered by an OPERABLE emergency power source. OR D.2 Suspend movement of recently irradiated fuel assemblies.	Immediately Immediately 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. OR One or more CRVS trains inoperable due to an inoperable CRE boundary 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	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program. ~~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.~~	In accordance with the Control Room Envelope Habitability Program ~~24 months on a STAGGERED TEST BASIS~~

5.5 Programs and Manuals (continued)

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for restoration and maintenance, based on the recommendations of IEEE Standard 450, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer, of the following:

a. Actions to restore battery cells with float voltage < 2.13 V, and

b. Actions to equalize and test battery cells that have been discovered with electrolyte level below the top of the plates.

5.5.18 Control Room Envelope Habitability Program

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

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

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

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

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CRVS, operating at the flow rate required by the VFTP, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the CRE boundary.

(continued)

5.5 Programs and Manuals

5.5.18 Control Room Envelope Habitability Program (continued)

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

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

Proposed Technical Specification Changes (retyped)

Remove Page	Insert Page
3.7-18	3.7-18
3.7-19	3.7-19
5.0-24a	5.0-24a
	5.0-24b

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 envelope (CRE) 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 for reasons other than Condition B.	A.1	Restore CRVS train to OPERABLE status.	7 days
B. One or more CRVS trains inoperable due to inoperable CRE boundary in MODE 1, 2, 3, or 4.	B.1	Initiate action to implement mitigating actions.	Immediately
	AND		
	B.2	Verify mitigating actions ensure CRE occupant exposures to radiological hazards will not exceed limits, and CRE occupants are protected from smoke and chemical hazards.	24 hours
	AND		90 days
	B.3	Restore CRE boundary to OPERABLE status.	
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.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours

(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. OR One or more CRVS trains inoperable due to an inoperable CRE boundary 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	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

5.5 Programs and Manuals (continued)

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for restoration and maintenance, based on the recommendations of IEEE Standard 450, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer, of the following:

a. Actions to restore battery cells with float voltage < 2.13 V, and

b. Actions to equalize and test battery cells that have been discovered with electrolyte level below the top of the plates.

5.5.18 Control Room Envelope Habitability Program

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

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

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

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

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CRVS, operating at the flow rate required by the VFTP, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the CRE boundary.

(continued)

5.5 Programs and Manuals

5.5.18 Control Room Envelope Habitability Program (continued)

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

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

Changes to Technical Specification Bases Pages
(For information only)

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Ventilation System (CRVS)

BASES

BACKGROUND

The CRVS provides a protected environment from which ~~operators~~ occupants can control the units from the common control room following an uncontrolled release of radioactivity, hazardous chemicals, or ~~toxic gas~~smoke.

The CRVS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) ~~air~~ and a CRE boundary that limits the inleakage of unfiltered air (one train from each unit). Each CRVS train consists of a heater, a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and one pressurization supply fan, one filter booster fan, and one main supply fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system.

The CRVS is an emergency system, parts of which may also operate during normal unit operations. Upon receipt of an actuating signal, the normal air supply to the ~~control room~~CRE is isolated, and the stream of outside ventilation air from the pressurization system and recirculated control room air is passed through the system filter. The pressurization system draws outside air from either the north end or the south end of the turbine building based upon the wind direction or the absence of releases at the inlet. The prefilters remove any large particles in the air, to prevent excessive loading of the HEPA filters and charcoal adsorbers. The heaters are important to the effectiveness of the charcoal adsorbers but are not required for CRVS operability.

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

Manual or automatic actuation of the CRVS places the system in one of three states; 1) pressurization (Mode 4), 2) recirculation (Mode 3), or 3) smoke removal (Mode 2). Mode 4 is the only required mode for the CRVs to be considered OPERABLE. The other modes of operation are useful for certain emergency situations, such as control room smoke removal; but they are not required for CRVS OPERABILITY. Actuation

of the system to the recirculation mode closes the unfiltered outside air intake and unfiltered exhaust dampers, and aligns the system for recirculation of the ~~control room~~ air within the CRE through the redundant trains of HEPA and the charcoal filters. The pressurization mode also initiates pressurization and filtered ventilation of the air supply to the ~~control room~~CRE.

Outside air is filtered, diluted via pressure equalization with air from the mechanical equipment room, and added to the air being recirculated from the ~~control room~~CRE. Pressurization of the ~~control room~~CRE minimizes ~~prevents~~ infiltration of unfiltered air through the CRE boundary from all the surrounding areas adjacent to the CRE boundary. ~~The actions~~

(continued)

BASES

BACKGROUND (continued)

The actions taken in the manual actuation of the recirculation mode are the same, except that the signal switches ~~control room ventilation~~ the CRVS to an isolation alignment to ~~prevent~~ minimize any outside air from entering the ~~control room~~CRE through the CRE boundary.

To monitor the status of the booster fan(s) small plastic streamers are installed on the exhaust duct grates. These exhaust ducts are located in the back of the control room in the ceiling and are used to take suction on the control room atmosphere. These streamers will hang down when the booster fan(s) are not operating. Therefore if a booster fan is in operation the streamers will be "up". This will permit the operators to diagnose a problem with the booster fan or with the booster fan supply damper.

The pressurization mode is the only automatically actuated mode change since bulk chlorine gas is no longer kept onsite and the chlorine monitors which previously initiated the recirculation mode have been de-activated.

The air entering the ~~control room~~CRE is continuously monitored by radiation detectors. One detector output above the setpoint will cause actuation of the pressurization mode.

A single CRVS train will pressurize the ~~control room~~CRE ~~equal to or greater than~~to about 0.125 inches water gauge relative to external areas adjacent to the CRE boundary. The CRVS operation in maintaining the ~~control room~~CRE habitable is discussed in the FSAR, Section 9.4.1 (Ref. 1).

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CRVS is designed in accordance with Seismic Category I requirements.

The CRVS is designed to maintain a habitable environment in the CRE~~the control room environment~~ for the duration of the most severe Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or its equivalent to any part of the body.

APPLICABLE SAFETY ANALYSES

The CRVS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the CRE ensures an adequate supply of filtered air to all areas requiring access. The CRVS provides airborne radiological protection for the ~~control room operators~~CRE occupants, as demonstrated by the ~~control room~~CRE ~~accident~~ occupant dose analyses for the most limiting design basis ~~loss of coolant~~ accident, fission product release presented in the FSAR, Chapter 15 (Ref. 2).

There are no offsite or onsite hazardous chemicals that would pose a credible threat to control room habitability. Consequently, engineered controls for the control room are not required to ensure habitability

against a hazardous chemical threat. The amount of CRE unfiltered inleakage is not incorporated into PG&E's hazardous chemical assessment.

The evaluation of a smoke challenge demonstrated that smoke will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels (Ref. 1). The assessment verified that a fire or smoke event anywhere within the plant would not simultaneously render the Hot Shutdown Panel (HSP) and the CRE uninhabitable, nor would it prevent access from the CRE to the HSP in the event remote shutdown is required. No CRVS automatic actuation is required for hazardous chemical releases or smoke and no Surveillance Requirements are required to verify operability in cases of hazardous chemicals or smoke.

~~The analysis of toxic gas releases demonstrates that the toxicity limits are not exceeded in the control room following a toxic chemical release, as presented in Reference 1.~~

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

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

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

LCO

Two independent and redundant CRVS trains are required to be OPERABLE to ensure that at least one is available ~~assuming~~if a single active failure disables the other train. The redundant train means a second train from the other unit (Ref. 5). Total system failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of 5 rem whole body or its equivalent to any part of the body~~5 rem to the control room operator~~ to the CRE occupants in the event of a large radioactive release.

~~The~~ Each CRVS train is considered OPERABLE when the individual components necessary to limit ~~operator~~ CRE occupant exposure are OPERABLE ~~in both trains~~. A CRVS train is OPERABLE when the associated:

a. main supply fan (one), filter booster fan (one) and pressurization fan (one) are OPERABLE;

b. HEPA filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions; and

c. Ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

~~In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.~~

In order for the CRVS trains to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs. In the event of an inoperable CRE boundary in MODES 1, 2, 3, or 4, mitigating actions are required to ensure CRE occupants are protected from hazardous chemicals and smoke.

DCPP does not have CRVS automatic actuation for hazardous chemicals or smoke. Current practices at DCPP do not utilize chemicals in sufficient quantity to present a chemical hazard to the control room. Smoke is not considered in the DCPP safety analyses. Therefore, there are no specific limits at DCPP for hazardous chemicals or smoke.

The LCO is modified by a Note allowing the ~~control room~~CRE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s)

entering or exiting the area. For other openings, these controls should consist of stationing a dedicated individual at the opening who is in continuous communication with the operator in the CRE~~control room~~. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for ~~control room~~CRE isolation is indicated and will be trained to perform that function.

(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), the CRVS must be OPERABLE to ensure that the CRE will remain habitable ~~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~~,~~ for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CRVS train is adequate to perform the ~~control room~~CRE occupant 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, B.2, and B.3

The CRE boundary is inoperable if unfiltered inleakage past the CRE boundary can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem whole body or its equivalent to any part of the body).

In the event of an inoperable CRE boundary in MODES 1, 2, 3, or 4, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from potential smoke and chemical hazards. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional.

The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. Actions must be taken to restore the CRE boundary to OPEARABLE status within 90 days. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair and test most problems with the CRE boundary. ~~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 or the CRE boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1.1, D.1.2, and D.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~~CRE. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

(continued)

BASES

ACTIONS (continued)

E.1

In MODE 5 or 6, or during movement of recently irradiated fuel assemblies, with two CRVS trains inoperable or with one or more CRVS trains inoperable due to an inoperable CRVS boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of ~~enter~~ the ~~control room~~CRE. This places the unit in a condition that minimizes the 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~~CRE 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)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.10.3

This SR verifies that the required CRVS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CRVS filter tests are in accordance with ANSI N510-1980 (Ref. 3). The VFTP includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.10.4

This SR verifies that each CRVS train automatically starts and operates in the pressurization mode on an actual or simulated actuation signal generated from a Phase "A" Isolation. The Frequency of 24 months is based upon the maintenance and operating history (Ref. 6).

SR 3.7.10.5

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

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem whole body or its equivalent to any part of the body and the CRE occupants are protected from hazardous chemicals and smoke. For DCPP, there is no CRVS automatic actuation for hazardous chemical releases or smoke and there are no CRVS Surveillance Requirements that verify operability in cases of hazardous chemicals or smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196 (Ref. 8), Section C.2.7.3, which endorses, with exceptions, NEI 99-03 (Ref. 9), Rev. 0, Section 8.4 and Appendix F. These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 10). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.~~This SR verifies the integrity of the control room enclosure, and the assumed inleakage rates of the potentially~~

~~contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify proper functioning of the CRVS. During the pressurization mode of operation, the CRVS is designed to pressurize the control room ≥ 0.125 inches water gauge positive pressure with respect to the outside atmosphere in order to prevent unfiltered inleakage. The CRVS is designed to maintain this positive pressure with one train. The Frequency of 24 months on a STAGGERED TEST BASIS is based upon the maintenance and operating history (Ref. 6).~~

REFERENCES

1. FSAR, Section 9.4 and 9.5~~.1~~.
2. FSAR, Chapter 15.
3. ANSI N510-1980.
4. NUREG-0800, Section 6.4, Rev. 2, July 1981.
5. DCM S-23F.
6. License Amendment 119/117, April 14, 1997.
7. License Amendment 184/186, January 3, 2006.
8. Regulatory Guide 1.196.
9. NEI 99-03, "Control Room Habitability Assessment," June 2001.
10. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability" (ADAMS Accession No. ML040300694).