Enclosure
PG&E Letter DCL-98-045

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

License Amendment Request
No. 98-03

Pursuant to 10 CFR 50.59 and 10 CFR 50.90, Pacific Gas and Electric Company hereby applies to amend its Diablo Canyon Power Plant Facility Operating License Nos. DPR-80 and DPR-82 (Licenses). The proposed change revises Technical Specification (TS) Bases 3/4.6.2.1, "Containment Spray System."

Information on the proposed TS Bases change is provided in Attachments A, B, C, and D. The change has been reviewed and does not involve a significant hazards consideration as defined in 10 CFR 50.92 or an unreviewed environmental question. Further, there is reasonable assurance that the proposed change will not adversely affect the health and safety of the public.

Sincerely,

Lawrence F. Womack

Subscribed and sworn to before me
this 18th day of March, 1998.
County of San Luis Obispo
State of California

Notary Public

DANA LOPEZ
COMM. #1096594
NOTARY PUBLIC CALIFORNIA
SAN LUIS OBISPO COUNTY
My Comm. Expires May 5, 2000

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REVISION OF TECHNICAL SPECIFICATION BASES 3/4.6.2.1 "CONTAINMENT SPRAY SYSTEM"

A. DESCRIPTION OF AMENDMENT REQUEST

This license amendment request (LAR) proposes to change the Bases for Technical Specification (TS) 3/4.6.2.1, "Containment Spray System," to clarify that containment spray (CS) is not required to be actuated during recirculation, but may be actuated at the discretion of the Technical Support Center (TSC). Additionally, the Bases will be clarified to state that the ability to spray containment using the residual heat removal (RHR) system is demonstrated by opening the RHR Spray Ring Cross Connect Valve 9003A or B. The Bases will also be clarified to state that flow to the spray headers can be established with only one operable RHR pump (RHRP) by closing the cold leg discharge valve 8809A or B.

Changes to the current TS Bases are noted in the marked-up copy of the current TS Bases page provided in Attachment B. The proposed new TS Bases page is provided in Attachment C. In addition, changes to the Improved TS (ITS) Bases (ITS LAR 97-09 submitted in PG&E letter DCL 97-106, dated June 2, 1997) are noted in the marked-up copy in Attachment D.

The proposed change is consistent with NUREG-1431, Revision 1, "Standard Technical Specifications - Westinghouse Plants."

B. BACKGROUND

History

In 1991, during a review of design calculations for containment heat removal following a loss-of-coolant accident (LOCA), PG&E identified that heat loads from the RHR system during the recirculation phase of a LOCA may cause component cooling water (CCW) temperature design basis limits to be exceeded during certain conditions. This was reported in Licensee Event Report (LER) 1-91-018-01. Corrective actions included implementation of Revisions 9 and 3 to Emergency Operating Procedure (EOP) E-1.3, "Transfer to Cold Leg Recirculation," for Units 1 and 2, respectively, on December 13, 1991. These revisions specified placing only one RHRP in operation, rather than two, if necessary to maintain acceptable CCW temperatures during the recirculation phase of a LOCA and terminating CS when in this condition. These procedure revisions were made based on evaluations that demonstrated CS was not necessary during the recirculation phase of the worst case LOCA.

During subsequent review of the documentation associated with the changes to EOP E-1.3, several discrepancies were identified. These discrepancies are discussed in a PG&E memorandum to file from the Manager of Design Engineering Services, dated October 7, 1997. These discrepancies were discussed with NRC architect engineer (AE) inspection personnel at Diablo Canyon Power Plant (DCPP) in August and September 1997.

TS 3/4.6.2.1 states "Two containment spray systems shall be OPERABLE with each spray system capable of taking suction from the refueling water storage tank (RWST) and transferring spray function to a RHR system taking suction from the containment sump." TS Bases 3/4.6.2.1 states "Operability of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA." PG&E has interpreted these statements to mean that there must be a capability of aligning the CS system to the RHR system if needed, but not that CS must be aligned to the RHR system during the recirculation phase of a LOCA.

PG&E determined that a TS change was not required since the capability to spray containment using the RHR system was maintained, as a method was available to connect the RHR system to the CS headers.

NRC Architect Engineer Inspection

During an NRC AE inspection in August and September 1997, the inspection team indicated that the change to eliminate CS during the recirculation phase of a LOCA was not consistent with the requirements of the TS and constituted a potential unreviewed safety question (USQ) (NRC Inspection Report Nos. 50-275/97-202 and 50-323/97-202).

When EOP E-1.3 was revised in 1991, PG&E considered the actions taken under the 10 CFR 50.59 process to be appropriate, that a USQ was not involved, and consequently that NRC approval was not required prior to implementing the changes. PG&E reiterated this position in PG&E letter DCL-98-007, dated January 12, 1998, "Reply to NRC Inspection Report Nos. 50-275/97-202 and 50-323/97-202."

In order to resolve this disagreement regarding the USQ in an expeditious manner, while at the same time preserving PG&E's position regarding the correctness of its prior actions, PG&E is submitting this LAR for NRC review. PG&E considers that the CS system is operable and is consequently capable of performing its required safety functions. Operation in accordance with EOP E-1.3 is not in conflict with any TS.

Function

The CS system serves to mitigate high energy line breaks (HELB) inside containment. HELBs include feedwater line breaks, main steam line breaks (MSLBs), and LOCAs. The CS condenses the steam generated by the HELB. The CS system also provides a mechanism for injecting NaOH into the containment atmosphere and sump. The NaOH in the spray scrubs radioactive iodine out of the atmosphere, which would be present in the event of a LOCA. After falling into the containment sump, the NaOH balances the pH of the fluid that collects in the sump. The pH is balanced to minimize the evolution of iodine and to minimize the effect of chloride and caustic stress corrosion on mechanical systems and components.

HELB Scenario

Following a HELB, the emergency core cooling system (ECCS) injects borated water from the RWST to the core as discussed below. If containment pressure rises to 22 psig (or as high as 24.7 psig including instrument uncertainty) coincident with a safety injection (SI) signal, the CS system is actuated.

When the RWST level drops to 33 percent, the low head ECCS pumps (RHRPs) automatically shut off. Operators realign the RHRP suction to draw off the containment sump to start the recirculation phase of accident recovery. In the meantime, if CS was actuated, the CS pumps (CSPs) will continue to draw from the RWST and feed the spray headers. The high head ECCS pumps [centrifugal charging pumps (CCPs)] and intermediate head ECCS pumps [safety injection pumps (SIPs)] will pump water to the core from the RWST until the RHRPs have been realigned to take suction from the containment sump, after which the CCPs and SIPs will take their suction from the RHRP discharge. ECCS injection is continuous and always sufficiently greater than core boil-off to assure adequate core cooling.

Recirculation is not a concern for a feedwater line break or a MSLB because the reactor coolant system (RCS) remains intact. With the RCS intact, RWST drain down is slower. CS will be available as long as required to control containment pressure with water supplied from the RWST.

Recirculation With Two RHR Trains Operable

When the RWST level reaches 4 percent following a LOCA, operators are directed to shut off the CSPs in accordance with EOP E-1.3. At this time, the required safety function of these pumps has been completed. In the design basis containment integrity analysis, this level is reached as early as 1600 seconds (approximately 27 minutes) after the initiation of the LOCA. If two trains of RHR are operating, operators will close valve 8809A or B (refer to figure 1) on the discharge from one RHRP to the cold legs, and open valve 9003A or B on the same RHRP discharge line to the associated CS header. Both RHRPs will continue to feed the CCP and SIP suctions, but one RHRP will also provide direct injection to the RCS (via the open valve 8809A or B) while the other RHRP will provide spray flow.

Recirculation With One RHR Train Operable

If only one train of RHR is operating, operators are directed not to initiate recirculation spray. A single RHRP cannot feed SIPs, CCPs, the direct injection path through valve 8809A or B to the RCS cold legs, and still have enough discharge pressure to drive water up to the spray rings without shutting off RHR flow to the core. As discussed below, LOCA response EOP E-1.3 is written to provide the maximum flow to the core; however, on direction from the TSC, operators may initiate recirculation spray. Decreasing the flow rate to the core by closing valve 8809A or B (which stops the direct RHR flow to the cold legs) will provide sufficient pressure to drive at least 580 gpm to the spray headers. Even with RHR flow to the RCS cold legs shut off by closing valve 8809A or B, it has been demonstrated that under the worst conditions, the injection flow via the CCPs and SIPs is significantly greater than the minimum required to maintain adequate core cooling.

C. JUSTIFICATION

The proposed TS Bases change is needed to resolve the USQ that CS is not required to be actuated during recirculation, but may be actuated at the discretion of the TSC. The TS requirement for each CS system to be capable of transferring the spray function to an RHR system needs to be clarified in the Bases to state that the ability to spray containment using the RHR system is demonstrated by opening the RHR spray ring cross connect valves (9003A and 9003B). These clarifications are needed to preclude unnecessary operator actions and unnecessary demands on ECCS flow resources during accident conditions.

Due to the design of the plant, the capability to spray containment following the injection phase of a LOCA requires operator action, since the CSPs cannot take suction directly from the containment sump. This change clarifies the Bases for

operation of the CS system in the recirculation mode. The ability to align the RHR system to the CS headers will continue to be verified by means of TS 3/4.6.2.1 and supporting calculations.

D. SAFETY EVALUATION

Applicability

CS operation is critical only in the early period of HELB accidents, when CSPs draw borated water from the RWST and inject it into the containment atmosphere. Assumptions about this period of CS operation have not changed since the early plant design.

The concern addressed here only applies to the later stage of LOCA mitigation, when the RWST has been exhausted. At this point, the CSPs are shut off. Containment recirculation spray is achievable by aligning valves from the post-LOCA recirculation path. This is not a concern for feedwater line breaks or MSLBs because, as discussed above, with the RCS intact there will be no need to recirculate coolant from the containment sump.

Licensing Bases for CS

The definition of operability of a system given in TS Definition 1.21, "Operable - Operability," is that the system is capable of performing its specified function. The functions specified for the CS system given in the TS Bases are to ensure post-accident pressure reduction, cooling capability, and iodine removal from the containment atmosphere consistent with the assumptions used in the safety analyses. Since these functions are maintained within the limits of the safety analyses even in the absence of recirculation spray, the operability of the CS system as required by TS 3.6.2.1 is maintained.

As discussed earlier, PG&E has interpreted TS 3.6.2.1 to mean that there must be a capability of aligning the spray headers to the RHR system and providing flow if needed, and not that operation of recirculation spray is required.

TS Bases 3/4.6.2.1 states that the CS system provides a mechanism for iodine removal. The Bases for TS 3/4.6.2.2, "Spray Additive System," and TS 3/4.6.2.3, "Containment Cooling System," also discuss the NaOH spray additive and its roles in iodine removal and in controlling recirculation sump pH. However, for a given size LOCA, the same amount of RWST water will be pumped into the containment via the CS system with or without recirculation spray. Therefore, the same amount of NaOH is injected into the containment whether or not recirculation spray is used, and there is no effect on sump pH, iodine retention, or dose analysis.

Original Design Basis

When DCPP started commercial operation in 1985, the Final Safety Analysis Report (FSAR), accident analysis, and TS consistently indicated that, in the recirculation phase of post-LOCA recovery, RHRPs would provide recirculation spray. The FSAR had been submitted with this function described as early as 1973.

The FSAR describes the CS system as being designed in accordance with Regulatory Guide (RG) 1.1, "Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal System Pumps," dated November 1970. PG&E did not explicitly commit to this RG, but after the NRC reviewed the 1973 submittal, the NRC concluded that DCPP's design was in accordance with RG 1.1. Initially, the FSAR stated that "During the recirculation phase following a postulated LOCA, containment spray water is provided by recirculation of water from the containment sump through the RHRPs and piping which connects the RHRP discharge to the containment spray header." Further, the descriptions noted that "This mode of operation will be continued for a period of at least 2 hours following the accident in order to continue iodine removal from the containment atmosphere," (Reference FSAR Section 6.2). This statement regarding 2-hour spray operation remained unchanged between the original FSAR (1974), the Amended FSAR (1981), and FSAR Update Revisions 0 (1984) through 7. A similar 2-hour statement appears in other industry documents, such as the Standard Review Plan, Revision 2 (1988), Section 6.5.2, "Containment Spray as a Fission Product Cleanup System."

The DCPP safety evaluation reports (SERs) and supplemental SERs (SSERs) do not contain specific CS system performance acceptance criteria beyond the implicit general requirement that it will operate as necessary to prevent post-accident peak containment pressures from exceeding design values and that it will operate as necessary to support the offsite dose analysis which must conclude that the offsite doses resulting from an accident will be within the guideline values of 10 CFR 100. The SER and SSERs do not impose any more restrictive limits on accident consequences than the acceptance criteria used in the DCPP accident analyses, which are not affected by the absence of recirculation spray.

Emergency Operating Procedure, EOP E-1.3

EOP E-1.3 governs how switchover to recirculation is accomplished. It was written based on Emergency Response Guideline (ERG) ES-1.3 developed by the Westinghouse Owners Group. A review of ES-1.3 shows that the switchover to recirculation spray was recognized to be highly plant specific and not necessarily a requirement for mitigation. Since plants differed so much in design (at some plants, CSPs transfer suction to the containment sump, or they transfer suction to RHRP discharge, or RHRP discharge pressure alone drives spray), the ERG directed procedure writers to their plant FSAR for guidance. The original EOP E-1.3 contained a caution that spray, if initiated, must be maintained for a minimum of 2 hours. Since this caution is not included in the ES-1.3 guideline, it is presumed to be based on the DCPP FSAR. The original forerunner of EOP E-1.3 described the following actions to be taken when both RHRPs were available: one was aligned for direct injection and one was aligned for spray, with SIPs and CCPs drawing suction from both. If one RHR was unavailable, the other was aligned for both injection and spray, and the injection path valve HCV-637 or 638 was throttled to limit RHR motor amps. This step is presumed to be based on protection of the RHRP from runout conditions, rather than ensuring adequate pressure would be available to force flow through the spray header. Subsequent analysis has demonstrated, that even if the RHR throttle valves had been closed, sufficient ECCS injection would have been achieved through the CCP and SIP paths.

Reclassification of Recirculation Spray

In 1991, due to concerns over high CCW temperatures post-LOCA, engineers began to consider EOP changes to limit RHR heat transfer to CCW in the recirculation mode. The proposed change was to intentionally stop one RHRP when either one of the two auxiliary salt water pumps or some other system failure limited CCW heat removal capability. At this time, the question of recirculation spray flow with one RHRP was more closely examined. It became apparent that a single RHRP cannot feed SIPs, CCPs, the direct injection path through valve 8809A or B to the cold legs, and still have enough discharge pressure to drive water up through the spray rings. This was a concern for the proposed EOP change, but it was also recognized to be a single failure concern, since the single failure of one RHRP led to the same scenario.

PG&E pursued the following actions: (1) it reported the issue in LER 1-91-018 as discussed above, (2) it performed an operability evaluation, (3) it initiated a non-conformance report, and (4) it contacted Westinghouse to develop a safety evaluation checklist (SECL) (Reference SECL-91-458). An SECL is a Westinghouse safety evaluation. The operability issue was resolved by analyses summarized in the SECL, that demonstrated that recirculation spray was not required for accident mitigation. By the time the low-low level

(4 percent) is reached in the RWST, the pressure and temperatures are low enough, and enough iodine scrubbing has occurred, that recirculation spray is not necessary.

Peak Post-LOCA Pressure and Temperature

The accident analyses require that the containment peak post-accident pressure not exceed 47 psig and that it be reduced to less than half the peak value within 24 hours.

The peak post-LOCA containment pressure and temperature occur prior to the recirculation phase of SI, and are not affected by operation of CS during the recirculation mode of SI. Even without recirculation spray, the requirements that containment peak post-accident pressure not exceed 47 psig and that it be reduced to less than half the peak value within 24 hours are met. Although the peak pressure and temperature requirements are met, the long term pressure and temperature profiles are slightly increased if recirculation spray is not used This could potentially affect the offsite dose due to increased containment leakage or result in environmental conditions exceeding those for which the equipment is qualified. The following two sections discuss the affect of having no recirculation spray on environmental qualification (EQ) and on dose rates.

Environmental Qualification

An evaluation was performed which determined that safety-related equipment inside containment having operating requirements for accident mitigation in the recirculation mode of SI still meets EQ requirements for the long term containment temperature profiles that result if recirculation spray is not used. Therefore, there is no increase in the probability of this equipment malfunctioning.

Dose Analyses

The post-LOCA offsite and control room dose analyses assume a fixed specified containment leak rate during the first 24 hours and a reduced specified containment leak rate after the first 24 hours. These assumed leak rates are based on the maximum containment leak rates allowed under the 10 CFR 50, Appendix J, Containment Leak Rate Testing Program and on the assumption that after the first 24 hours the containment pressure has been reduced to less than half the calculated peak pressure. The assumed leak rate is not otherwise dependent on the post-LOCA pressure and temperature profiles. Since the post-LOCA peak containment pressure is less than the design value used for leak rate testing, and the pressure is reduced to less than half the calculated peak pressure within 24 hours following the accident, even in the absence of CS in the recirculation mode, the absence of recirculation spray has no effect on the

leak rates assumed in the dose analyses. Hence the absence of recirculation spray has no effect on the offsite and control room dose analysis results or on the conclusions due to containment pressure. The effect of the reactor coolant leaks outside containment assumed in the dose analyses is also unchanged by the absence of recirculation spray since the absence of recirculation spray has no effect on the source term assumed for these leaks.

Decontamination Factor

At the time that the potential unavailability of recirculation spray was identified in 1991, the offsite dose analysis assumed an iodine decontamination factor in containment of 1000 (i.e., only 1/1000 of the iodine released from the damaged fuel remained in the containment atmosphere, and all the rest was captured by the water and unavailable for leakage out of the containment atmosphere). The control room dose analysis assumed a decontamination factor of 100. The accident analysis shows that the iodine decontamination factor reaches 1000 at 25.87 minutes (and reaches 100 even sooner), which is before initiation of CS in the recirculation mode of SI. In fact, no contribution to increasing the decontamination factor by recirculation spray is assumed at all. Hence, the presence or absence of recirculation spray has no affect on the results of the offsite and control room dose analyses since it does not change any of the assumptions made in performing those analyses.

Hydrogen Mixing

The DCPP design bases and accident analyses do not assume any contribution to post-accident containment hydrogen mixing from recirculation spray. The DCPP design basis has always assumed that hydrogen mixing is achieved based on CFCU operation alone, and this change has no impact on that assumption as stated in the DCPP SER dated October 16, 1974.

Potential for Creating a New Malfunction

PG&E has reviewed the declassification of recirculation spray to determine if it created the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the Safety Analysis Report. PG&E concludes that it did not for the following reasons:

- Single failure of the CS system is evaluated in FSAR Section 6.2.2.3.2 and Table 6.2-27. Single failure of an RHR train is evaluated in Appendix 6.3A. The potential for RHRP failure to cause the loss of recirculation spray is not specifically discussed because the iodine removal function in recirculation spray is not credited. From the data provided in FSAR Chapters 6 and 15 for the iodine removal functions (decontamination factor of 100 and elemental iodine removal coefficient of 31 per hour), it can be determined that the

iodine removal function for the CS system is completed in approximately 26 minutes, and prior to completing switchover to the recirculation mode after a LOCA. PG&E interprets the statement in Revision 6 of FSAR Section 6.2.3.2.1 and EOP E-1.3 that recirculation spray will continue for 2 hours to remove iodine as descriptive in nature, explaining an additional capability of the CS system, but not relied upon or evaluated in the FSAR. Even with the revision to EOP E-1.3 to declassify recirculation spray, PG&E still retained the capability to use recirculation spray upon direction from the TSC.

Since the post-LOCA containment environmental conditions without recirculation spray remain bounded by those for which safety-related equipment inside containment is qualified, there is no resulting increase in the probability that it will malfunction. There is no other new mechanism created by the unavailability of recirculation spray that would lead to any greater probability of malfunction of safety-related equipment. Therefore, the possibility of a malfunction of a different type than previously evaluated is not created.

Conclusion

CS is required to mitigate HELB events inside containment by condensing steam, and through use of NaOH as a spray additive by scrubbing iodine from the containment atmosphere and by balancing the pH of the fluid that collects in the containment sump. CS is only required to be in service during the injection phase of an accident. CS is not required for the recirculation phase of an accident. However, if determined to be warranted by the TSC, CS can be initiated during the recirculation phase of a LOCA by directing RHR flow to the core be shut off by closing valve 8809A or B (which shuts off RHR flow to the cold legs). This will provide sufficient pressure to drive at least 580 gpm to the spray headers. Even with RHR flow to the RCS cold legs shut off by closing valve 8809A or B, it has been demonstrated that under the worst conditions, the injection flow via the CCPs and SIPs is significantly greater than the minimum required to maintain adequate core cooling.

E. NO SIGNIFICANT HAZARDS EVALUATION

PG&E has evaluated the no significant hazards considerations (NSHC) involved with the proposed amendment, focusing on the three standards set forth in 10 CFR 50.92(c) as set forth below:

> *"The commission may make a final determination, pursuant to the procedures in paragraph 50.91, that a proposed amendment to an operating license for a facility licensed under paragraph 50.21(b) or paragraph 50.22 or for a testing facility involves no significant hazards*

considerations, if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

The following evaluation is provided for the NSHCs.

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

Containment spray (CS) in the recirculation mode of post-loss-of-coolant accident (LOCA) safety injection (SI) is used only after the accident has already occurred. Its availability or unavailability is unrelated to, and is not a precursor for, an accident that has already been initiated. The availability or unavailability of CS recirculation spray does not involve any physical change in plant systems, structures, or components, and there is no change in preaccident operating procedures, so there is no change to the probability of an accident occurring as a result of any such changes. The recirculation mode of emergency core cooling is only used following a LOCA; therefore, an evaluation of the effects of the use or absence of CS in the recirculation mode applies only to a LOCA and not to any other type of accident analyzed in the Final Safety Analysis Report (FSAR).

The peak post-LOCA containment pressure and temperature conditions occur prior to the recirculation phase of SI, and are not affected by CS operation during the recirculation mode of SI. The long term pressure and temperature profiles are slightly increased if recirculation spray is unavailable but are still within the dose analysis and equipment qualification requirements. There is no affect on the offsite dose analysis or on equipment operability.

If CS is not operated in the recirculation mode, there is no reduction in the amount of emergency core cooling system (ECCS) water pumped into the reactor vessel. Since the flow to the reactor is not reduced, core cooling is not adversely affected if recirculation spray is not used. If

recirculation spray is used under Technical Support Center (TSC) direction with only one train of residual heat removal (RHR) in operation, ECCS flow to the reactor will be reduced, but analysis has shown that the flow to the reactor in this situation is still in excess of that needed to supply the required core cooling. Therefore, although it is not required, it would still be possible to establish CS in the recirculation mode with only one train of RHR in operation, if considered desirable by the TSC.

From the above discussion, it can be seen that the consequences of an accident analyzed in the FSAR are not increased because the absence of recirculation spray has no affect on the dose analyses and the affect on other accident parameters is within limits.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

The possibility of a malfunction of a different type than previously evaluated is not created for the following reasons:

Data provided in the FSAR can be used to determine that the iodine removal function for the CS system is completed in approximately 26 minutes, and prior to completing switchover to the recirculation mode after a LOCA. The statements in previous revisions of the FSAR that recirculation spray will continue for 2 hours to remove iodine are considered to be descriptive in nature, explaining an additional capability of the CS system, but not relied upon or evaluated in the FSAR.

The post-LOCA containment environmental conditions without recirculation spray remain bounded by those for which safety-related equipment inside containment is qualified; therefore, there is no resulting increase in the probability that it will malfunction. There is no other new mechanism created by the unavailability of recirculation spray that would lead to any greater probability of malfunction of safety-related equipment.

The peak post-LOCA containment pressure and temperature conditions occur prior to the recirculation phase of SI, and are not affected by CS operation during the recirculation mode of SI. Also, the Diablo Canyon Power Plant (DCPP) design bases and accident analyses do not assume any contribution to post-accident containment hydrogen mixing from recirculation spray. The DCPP

design basis has always assumed that hydrogen mixing is achieved by containment fan cooler unit operation alone.

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

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

Technical Specification (TS) 3/4.6.2.1, "Containment Spray System," requires the operability of two trains of CS with each train capable of taking suction from the refueling water storage tank (RWST) and transferring spray function to an RHR train taking suction from the containment sump. With the proposed changes, the capability to perform the required alignment remains unaffected. However, the ability to actually provide CS in the recirculation mode of SI is limited by procedure in the event of failure of a train of auxiliary saltwater, component cooling water, or RHR. This does not affect the margin of safety as defined in the TS Bases. The Bases for CS operability are to ensure pressure reduction, cooling capability, and iodine removal from the containment atmosphere consistent with the assumptions used in the safety analyses.

All pressure reduction, cooling, and iodine removal parameters assumed in the accident analyses continue to bound those resulting in the event that recirculation spray is not used. The accident analyses require that the peak post-accident pressure does not exceed 47 psig, and that post-accident pressure be reduced to less than half the peak within 24 hours. These requirements are still met, but the long term pressure is slightly higher. Since these requirements are based on minimizing leakage rates and on environmental qualification concerns, and since the leakage rate in the offsite dose analysis and pressures for which safety-related equipment inside containment is qualified still bound the analysis results, a slightly higher long term pressure has no effect on safety margins. Although the long term temperature profile increases slightly with no recirculation spray, the equipment is still environmentally qualified for these temperatures, so again margin is maintained. The use of recirculation spray is not credited in the offsite or control room dose analyses since the containment atmospheric iodine decontamination factor reaches 1000 prior to the time recirculation spray is placed in service, so there is no loss of margin in the offsite and control room dose analyses. None of the accident analysis limits are exceeded in the absence of recirculation spray.

The function of CS to inject NaOH into the containment atmosphere and sump is not affected by the proposed changes. The same amount of

RWST water will be pumped into the containment via the CS system for a given size LOCA with or without recirculation spray, so the same amount of NaOH is injected into the containment, and hence there is no effect on sump pH, iodine retention, or the dose analysis.

In the event that recirculation spray is established under TSC direction with only one train of RHR in operation, there is no reduction in the margin of safety from the resulting reduced flow to the core since analysis has demonstrated that even with no RHR flow to the RCS, the resulting flow to the core will still be greater than that required to maintain adequate core cooling and maintain peak clad temperatures within limits.

The functions specified for the CS system in the TS Bases are to ensure post-accident pressure reduction, cooling capability, and iodine removal from the containment atmosphere consistent with the assumptions used in the safety analyses. Since these functions are maintained within the limits of the safety analyses even in the absence of recirculation spray, the operability of the CS system as required by TS 3.6.2.1 is maintained.

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

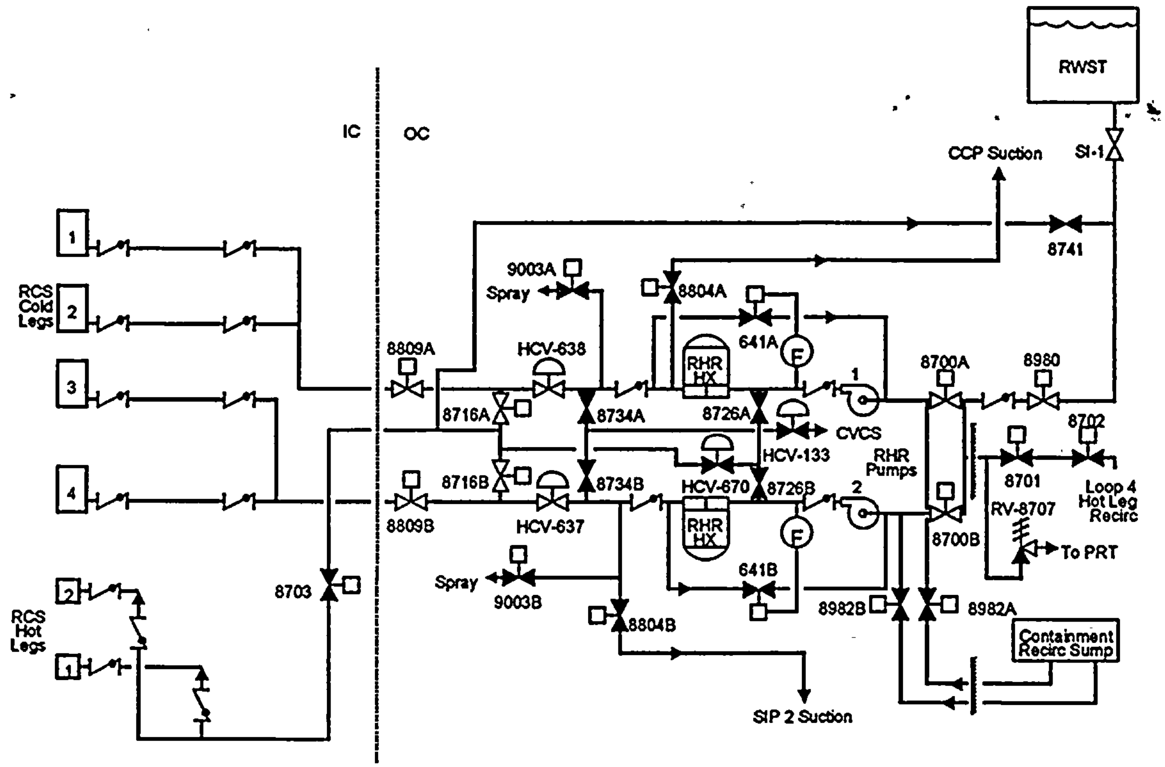
F. NO SIGNIFICANT HAZARDS DETERMINATION

Based on the above safety evaluation, PG&E concludes that the changes proposed by this LAR satisfy the no significant hazards considerations standards of 10 CFR 50.92(c), and accordingly a no significant hazards finding is justified.

G. ENVIRONMENTAL EVALUATION

PG&E has evaluated the proposed changes and determined the changes do not involve: (I) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.

Low Head Injection System



Legend:

CCP: centrifugal charging pump
CVCS: chemical and volume control system
HCV: hand control valve
IC/OC: inside/outside containment

RCS: reactor coolant system
SIP: safety injection pump
RHR: residual heat removal
RWST: refueling water storage tank

Valve positions shown are for normal plant operation.

Figure 1