



**SAN ONOFRE  
NUCLEAR GENERATING STATION**

**10 CFR 50.59**

**ANNUAL REPORT**

**1988**

ENCLOSURE 1

SAN ONOFRE NUCLEAR GENERATING STATION  
UNITS 1, 2 AND 3  
FACILITY CHANGES APPROVED FOR CONSTRUCTION DURING 1988

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Facility Change: 1-87-3104 Revision 1

Title

Modification to Provide a Selector Switch For Selecting Either Radiation Monitor R-1219 or Wide Range Gas Monitor (WRGM) R-1254 Alarm Contact as a Permissive for Opening and Closing of Waste Gas Discharge Valve SV-99

Description

In the existing design, a contact associated with R-1219 alarm is used as a permissive to prevent the opening of SV-99, precluding radioactive effluent from containment to escape through the pathway into the environment. This modification provides an option to select either R-1219 or R-1254 alarm contact as the permissive to the opening and manually closing of SV-99. R-1254 is the preferred monitor since it is newer and a more reliable monitor. The monitoring system is microprocessor based and the alarm setpoint can be reset in a few minutes in accordance with the Offsite Dose Calculation Manual. R-1254 also provides a more reliable signal than R-1219 for closing SV-99. A contact in the "alert" alarm circuit closes SV-99 in the event effluent radioactivity concentration reaches the setpoint.

The modification involves installation of a new non-safety related (NSR) position selector switch (HS-1245C) to be mounted on the Main Control Room (MCR) vertical panel immediately south of panel C-11. This switch will allow the selection of either R-1219 or R-1254 output contacts for the valve close signal and also enables remote manual closing of SV-99 from the control room without defeating the automatic isolation of the effluent pathway. Existing relay 74-4 in MCR panel C-71 provides the Safety Related (SR)/NSR isolation between R-1254 and the NSR selector switch. New NSR cables in new conduits using existing supports will be provided between HS-1245C, relay 74-4 and the alarm contacts of R-1219 in panel C-11. The existing cabling from the terminal board in C-11 to SV-99 will remain unchanged. An indicating fuse will be installed in the 120 VAC power "hot" line to HS-1245C to isolate the SR power from the NSR cables and the selector switch (HS-1245C).

Safety Evaluation

The new circuit, which provides a selection feature between R-1219 and R-1254, will be fail safe consistent with the existing design. If power to the monitor fails, relay 74-4 will be de-energized and SV-99 will receive a close signal. Operators will be unable to open SV-99 until power is restored to the monitor.

Facility Change: 1-87-3104 Revision 1 (Continued)

Safety Evaluation

The interconnection between SR and NSR circuits is made possible with an acceptable isolation device pursuant to the requirements of IEEE 384 for Class 1E and non-Class 1E devices. Selector switch HS-145C, and associated cabling will be supported pursuant to SI B/A criteria so as not to adversely affect other SR components during a seismic event. A separate isolation device between HS-1245C and associated cables and the existing circuitry for SV-99 is not provided since suitable fault isolation is provided at the "hot" side SR/NSR boundary. This modification only affects the NSR waste gas isolation valve SV-99 and the SR WRGM R-1254 functions. Isolation of the R-1254 from SV-99 and other circuitry is provided by an existing qualified relay device so that there is no impact on the SR function of R-1254. SV-99 isolation function is unchanged except for addition of an option to isolate on either R-1219 or R-1254 through HS-1245C. There are no other control or alarm functions affected and suitable isolation/fault-limiting provisions and seismic supports preclude other system interactions which could result in the loss of SV-99 isolation or R-1254 functions. Since R-1254 has no other control functions, failure of SV-99 to close due to failure of R-1254 is bounded by existing failure mode and effects of R-1219. As such, all accident and malfunction scenarios will remain bounded by existing analyses. Therefore, neither the consequences nor the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will be increased.

The margin of safety as defined in the basis for any Technical Specification is not reduced by this change. This modification improves reliability in monitoring and controlling releases of radioactive gaseous effluents by adding circuitry which will provide alarm/trip functions from a more reliable and accurate monitor as the primary source for terminating a release. In addition remote manual closing of SV-99 from the MCR is provided. This modification, however, requires a change to Technical Specifications (TS) 3.5.9 Table 3.5.9.1 to indicate that R-1254 provides automatic termination of release from the waste gas holdup system.

This change does not adversely impact the fire protection system/program or violate the UFHA and does not decrease the effectiveness of the Security Plan or Emergency Plan.

Facility Change: 1-87-3391

Title

Modification to Provide a Duct Heater for the Control Room Heating, Ventilating and Air Conditioning (HVAC) Emergency Filtration Unit A-33

Description

This modification upgrades the Control Room (CR) HVAC emergency filtration unit A-33 by adding humidity control to improve charcoal filter efficiency during operation. The CR HVAC unit A-31 recirculates approximately 10,000 CFM air of which 10% of makeup outside air is provided for personnel health, system losses and pressurization purposes. During an emergency, however, this makeup air is isolated and A-33 is started to provide the required makeup through the HEPA filters and charcoal beds in A-33. In 1967 when SONGS 1 was originally licensed there was no requirement for a humidity control for A-33. However, SCE and NRC inspection determined excessive condensation or moisture could exist in A-33 which will affect the efficiency of the charcoal filters. To minimize the effects of moisture on the filters, a duct heater, a humidistat for humidity control, and a local control panel are being added.

Although A-33 is safety related (SR), this modification installs a non-safety related (NSR) duct heater and associated instrumentation and cabling due to time constraints. Consequently, this modification is considered an interim improvement. A SR A-33 with a heater integral to the unit is included in the long-term upgrade plan to replace the existing A-33 and the duct heater to be installed in this modification.

Safety Evaluation

This modification has no impact on the original design basis or function of the control room (CR) complex HVAC systems. The modification enhances and maintains the A-33 adsorber efficiency to better than assumed in the safety analyses. Electrical isolation between the SR power source (MCC-1) and the NSR load is provided by a combination starter unit. An interlock to automatically de-energize the heater load during SIS/LOP conditions is provided to prevent automatic loading onto the emergency diesel generator. The existing A-31 cooling coil capacity is determined adequate to handle the added heat load from the heater. CR overheating during a SIS/LOP will not occur since A-31 also has a SIS/LOP interlock. During monthly surveillance testing, A-33 will be operated with A-31 to preclude overheating during normal operations.

Facility Change: 1-87-3391 (Continued)

Safety Evaluation

Failure of the NSR heater or thermal cutout would not result in the malfunction of other heater circuitry or result in bus overcurrent condition, since an airflow switch prevents heater operation without air flow from A-33. This failure would not cause any adverse effect other than an increased heat load for the CR, which is considered acceptable since A-31 cooling margin is determined sufficient. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will be increased as a result of this modification. In addition, this modification will not create the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA.

This modification has no effect on any of the Limiting Conditions for Operation or Surveillance Requirements of any existing Technical Specifications (TS). Therefore, the margin of safety as defined in the basis for any TS is not reduced. However, changes to TS 3.12 and 4.11, "Control Room Emergency Air Treatment System" is required to be consistent with the upgrade.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA. Failure of the heater thermal cutout will not cause any fire hazard on the charcoal adsorber. Additionally, this modification does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 1-88-3003, Revision 4

Title

Nuclear Instrumentation System (NIS) Upgrade

Description

In the last few years, the existing NIS has exhibited a gradual degradation of system performance and subsequent increase in maintenance requirement. Many spare parts are no longer manufactured and compatible replacements are not readily available. The existing design results in unnecessary radiation exposure to personnel performing maintenance work on the system due to the location of the detectors and pre-amplifiers. In addition, SCE identified anomalies in the existing NIS which does not meet Regulatory Guide 1.97, Revision 2 in a study submitted to the NRC in December 1985. Also, the environmental qualification of the existing detectors and cables is difficult to substantiate and the physical separation of the cabling does not meet Regulatory Guide 1.75 criteria. This modification, in conjunction with other Facility Changes associated with the NIS meets Regulatory Guide 1.97, Revision 2 requirements, and provides the NIS with newer equipment which offers high reliability and readily available spare parts.

This modification includes, but is not limited to:

1. Installation of a 4-bay NIS electronic signal processing cabinet in the NIS consisting of 4 drawers and 2 panels which performs the functions for the Source, Intermediate, and Power range channels as well as Auxiliary channels.
2. Installation of two wall mounted coincidentor logic cabinets which performs the logic and annunciation functions for the NIS.
3. Modification of the operator's console C03 to replace twelve indicators which provide flux level indication for Source, Intermediate, and Power ranges, two rate of change indication and the mode of operation switch; and, removal of two axial offset indicators.
4. Modification of the FOX-3 computer inputs to provide Source and Intermediate range (wide range) flux indication at the Technical Support Center (TSC). Remote shutdown panel C38 will be modified to remove existing log power channel drawer and provide one channel of wide range necessary to maintain the plant in a safe shutdown condition from outside the control room (CR).
5. Modification of the C10 cabinet in the main CR to remove all existing drawers; modification of the existing C37 cabinet to install existing axial offset calculator removed from C3 cabinet.

## Facility Change: 1-88-3003, Revision 4 (Continued)

### Description

6. Disconnection and removal of Inverter No.4. Retagging of existing Inverter 4A as Inverter 4; and, reassigning of the Source and Intermediate range NIS channels to Vital Bus No.1 and 2, coincidentor power supply from Inverter 4 Vital Bus No.4 to 125 Vdc Bus No.1.
7. Modification of the Intermediate range startup rate circuit boards to eliminate the startup rate rod stop and startup rate reactor trip below 1.0 E-4% power.

### Safety Evaluation

The probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSA is not increased due to this modification. The rod control system is the only control system which receives input from the NIS. Rod movement/speed is determined by a difference in signal between Tavg and Tref which is compensated using NIS power range nuclear flux and pressurizer pressure signals. NIS failure alone cannot cause rod movement in or out without the other parameter requirements being met. The Uncontrolled Rod Withdrawal from Subcritical (FSA 7.1) and Rod Withdrawal at Power (FSA 7.2) are the only accidents previously evaluated whose occurrence could potentially be affected by the rod control system. Since the NIS upgrade provides output signals to the rod control system in the same manner as the existing NIS and the upgrades provide a more reliable input, the probability of occurrence of an accident or malfunction of any equipment important to safety is rather decreased. The choosing of 1.0 E-4% cut-off for the intermediate range high startup rate rod stop and reactor trip maintains overlap with the high startup rate of the source range instrumentation. Operation of the facility with this cut-off rate has no effects on the accidents analyzed in the FSA. However, the FSA requires revision to reflect the change.

This change does not increase the consequences of an accident or malfunction of equipment important to safety previously evaluated in the FSA. The impact of the NIS upgrade has been evaluated in a Safety Review Report (SRR), which addresses both LOCA and non-LOCA, and Steam Generator Tube Rupture (SGTR) safety analysis. For each transient or accident previously analyzed in the FSA, the SRR evaluation has shown that the NIS upgrade does not adversely impact the consequences of the transient or accident. Only the evaluation of the drop rod transient required supporting re-analysis due to the relocation of one power range detector from Thimble 4 to Thimble 3. In addition, keyed switches are being added to allow bypassing the power range overpower and drop rod stops when the power range is inoperable. This modification does not affect the capability of the NIS to provide protective action or to mitigate the consequences of the accidents previously analyzed in the FSA.

**Facility Change: 1-88-3003, Revision 4 (Continued)**

**Safety Evaluation**

This change does not increase the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR/FSA. The startup rate circuit for the intermediate range channels are being revised such that the protective functions are enabled at 1.0 E-4 % reactor power versus the previous 1.0 E-7%. The protective functions, high startup rate rod stop and high startup rate reactor trip provided by the intermediate range channels are still available and will function as designed. This modification does not result in a new accident since these functions are of a mitigative nature to provide reactor core protection and control. A different kind of accident is not created since these functions are not credited in any of the accident analyses. In case of a control rod withdrawal from subcritical, these functions are a backup to the reactor overpower trip and will be actuated well before the overpower trip occurrence at 118% reactor power.

Technical Specification 2.1, "Limiting Combination of Power, Pressure, and Temperature" and Technical Specification 4.4, "Emergency Power System Periodic Testing" have been revised to restore the margin of safety as defined in the basis for any TS, which was reduced as a result of the NIS upgrade. The revisions to the above TS provide assurance that the plant is maintained within previously evaluated margins of safety.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 1-88-3003.01, Revision 3

Title

Nuclear Instrumentation System (NIS) Upgrade

Description

In the last few years, the existing NIS has exhibited a gradual degradation of system performance and subsequent increase in maintenance requirement. Many spare parts are no longer manufactured and compatible replacements are not readily available. The existing design results in unnecessary radiation exposure to personnel performing maintenance work on the system due to the location of the detectors and pre-amplifiers. In addition, SCE identified anomalies in the existing NIS which does not meet Regulatory Guide 1.97, Revision 2 in a study submitted to the NRC in December 1985. Also, the environmental qualification of the existing detectors and cables is difficult to substantiate and the physical separation of the cabling does not meet Regulatory Guide 1.75 criteria. This modification, in conjunction with other Facility Changes associated with the NIS meets Regulatory Guide 1.97, Revision 2 requirements, and provides the NIS with newer equipment which offers high reliability and readily available spare parts.

This modification involves the NIS upgrade inside containment as follows:

1. Installation of Source Range detectors NE-1201 and 1202 in Thimbles No. 1 and No. 6, respectively.
2. Installation of Intermediate Range/Power Range detectors NE-1203/NE-1205 in Thimble No. 2.
3. Installation of Intermediate Range/Power Range detectors NE-1204/NE-1207 in Thimble No. 5.
4. Installation of Power Range detectors NE-1206 and NE-1208 in Thimbles No. 3 and No. 8, respectively.
5. Installation of electrical penetrations E16, E17, W18 and W19.
6. Installation of cables from the detectors to penetrations installed by other NIS associated modifications.
7. Installation of a small section of cable trays at each new penetration to facilitate cable installation and complete conduit runs left over by other NIS associated modification.

Facility Change: 1-88-3003.01, Revision 3 (Continued)

Safety Evaluation

The probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSA is not increased due to this modification. The rod control system is the only control system which receives input from the NIS. Rod movement/speed is determined by a difference in signal between Tavg and Tref which is compensated using NIS power range nuclear flux and pressurizer pressure signals. NIS failure alone cannot cause rod movement in or out without the other parameter requirements being met. The Uncontrolled Rod Withdrawal from Subcritical (FSA 7.1) and Rod Withdrawal at Power (FSA 7.2) are the only accidents previously evaluated whose occurrence could potentially be affected by the rod control system. Since the NIS upgrade provides output signals to the rod control system in the same manner as the existing NIS and the upgrades provide a more reliable inputs, the probability of occurrence of an accident or malfunction of any equipment important to safety is decreased. This change does not increase the consequences of an accident or malfunction of equipment important to safety previously evaluated in the FSA. The impact of the NIS upgrade has been evaluated in a Safety Review Report (SRR), which addresses both LOCA and non-LOCA, and Steam Generator Tube Rupture (SGTR) safety analysis. For each transient or accident previously analyzed in the FSA, the SRR evaluation has shown that the NIS upgrade does not adversely impact the consequences of the transient or accident. Only the evaluation of the drop rod transient required supporting re-analysis due to the relocation of one power range detector from Thimble 4 to Thimble 3. In addition, keyed switches are being added to allow bypassing the power range overpower and drop rod stops when the power range is inoperable. The re-analysis determined that for single and multiple drop rod transients, the previous analysis presented in the FSA Section 7.5 remains applicable.

SRR evaluation of the power range overpower rod stop bypasses concluded that the safety analysis do not credit the power range overpower rod stop and bypassing this output when the power range channel is inoperable does not impact the safety analysis and the results presented in the FSA. SRR evaluation of the power range dropped rod, rod stop bypasses concluded that the safety analysis for a single drop rod is not impacted. For multiple drop rod events, however, the safety analysis is affected. Consequently, protective actions are taken to place the reactor in a configuration such that automatic rod withdrawal is prevented before bypassing a power range channel dropped rod, rod stop when the power range is inoperable.

The remainder of the incidents previously evaluated in the FSA, which were reviewed and addressed in the SRR, and were determined not affected by the NIS upgrade. The FSA, however, requires revision to reflect the changes.

Facility Change: 1-88-3003.01, Revision 3 (Continued)

Safety Evaluation

The possibility of an accident or malfunction of a different type than any previously evaluated in the FSA will not be increased. As previously discussed, one power range detector is relocated from Thimble 4 to Thimble 3 and the safety analysis will no longer credit the NIS power range dropped rod, rod stop with protective action for a single dropped rod event. However, the safety analysis coincident with installation of the NIS upgrade will credit the power range dropped rod, rod stop with protective action for multiple dropped rod events, since this is considered a new event not previously considered in the FSA.

The re-analysis of the dropped rod event demonstrated that for reduced Tavg operation, the NIS upgrade is acceptable with respect to the safety analysis provided the reactor is placed in a configuration such that automatic rod withdrawal is prevented before bypassing a power range dropped rod, rod stop when the power range channel becomes inoperable. For normal Tavg operation, the reactor must be placed in a configuration such that automatic rod withdrawal is prevented and the reactor must not operate beyond the turbine runback power level setpoint before bypassing a power range dropped rod, rod stop when the power range becomes inoperable. With the exception of the multiple dropped rod event no other accident or malfunction is created as a result of the NIS upgrade.

Technical Specification 2.1, "Limiting Combination of Power, Pressure, and Temperature" and Technical Specification 4.4, "Emergency Power System Periodic Testing" have been revised to restore the margin of safety as defined in the basis for any TS, which was reduced as a result of the NIS upgrade. TS 3.5.1, "Reactor Trip System Instrumentation" Limiting Conditions for Operation has been revised to be consistent with the NIS upgrade. TS 3.5.6, Table 3.5.6-1 has been revised to include operability requirements for accident monitoring instrumentation included in the NIS upgrade. TS 4.1.5 Table 4.1.5-1 has been revised to add surveillance requirements for the new accident monitoring channels. TS 3.11 has been revised to be consistent with the NIS upgrade which now measures Incore Axial Offset (IAO) instead of the previously dedicated IAO system with the NIS as backup. The revisions to the above TS provide assurance that the plant is maintained within previously evaluated margins of safety as defined in the basis for any TS.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA. In addition this modification does not decrease the effectiveness of the Emergency Plan or the Security Plan.

**Facility Change: 1-88-3003.04, Revision 4**

**Title**

Nuclear Instrumentation System (NIS) Upgrade

**Description**

This modification, in conjunction with other Facility Changes associated with the NIS meets Regulatory Guide 1.97, Revision 2 requirements and provides the NIS with newer equipment which offers high reliability and readily available spare parts.

This modification involves the NIS upgrade work outside containment as follows:

1. Installation of approximately 3000 feet of new cable from the electrical penetrations outside containment to the NIS cabinets in the Control Room (CR).
2. Installation of two (2) pre-amplifier enclosures and lead shielding outside containment.
3. Modification of the old Watch Engineer's room including installation of new lighting fixtures, 8-hour battery pack auxiliary lighting and making preparations for installation of the replacement NIS equipment.
4. Removal of three junction boxes and relocation of two junction boxes in the breezeway preclude interference during installation of new NIS penetrations, and modification of the associated raceway and loop cabling as required by design modifications.
5. Providing supports for the new NIS upgrade equipment outside containment.
6. Modification of the HVAC system in the old Watch Engineer's office to accommodate the new NIS upgrade console and coincidentor cabinets. This includes rerouting and or/abandoning in place part of the existing ducting, permanent closure of fire dampers FD-12 and FD-13 to maintain fire barrier integrity, disconnecting indicating switches ZS-327 and ZS-328, and relocation of one auxiliary battery backup lighting fixture.

Facility Change: 1-88-3003.04, Revision 4 (Continued)

Safety Evaluation

This change provides for the outside containment portion of the NIS upgrade including the installation of new cabling system and two pre-amplifier enclosures; modification of the fire detection system and CR HVAC system. This change does not affect the function or operation of the existing NIS or any other existing equipment. Modification of Zone 16 fire detection system junction boxes will not affect the function, operation or intent of the original design since no smoke/fire detectors are modified or deleted. The HVAC modification to redirect the airflow to the new NIS equipment room will not have a significant effect on the existing CR cooling loads. The pre-amplifier enclosure and shielding wall are designed to preclude any significant change in flooding path resistance or limiting (PMF) flood level. A tornado missile impact probability calculation performed on the cabling conduit, which are not enclosed in an existing safety related structure, determined that the probability satisfies the NRC Standard Review Plan occurrence criterion of less than 10 to the minus 7 per year. The new conduits, pre-amplifier enclosures are designed to Seismic Category A criteria. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will not be increased as a result of this change.

A review for any adverse HELBA interactions determined that the routing for the new cabling is equivalent to the existing plant condition documented in Calculation No. DC-2771 and addressed as part of SEP Topic III-5(b).

Additionally the two channels, which will be used for Post Accident Monitoring Instrumentation, are physically separated throughout the entire system to the maximum extent practical. The fire detection system and the HVAC system are determined to function as designed. The supports for the associated raceway system have been evaluated and found to be in accordance with Seismic Category A criteria. Therefore, this change will not create the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA.

The margin of safety as defined in the basis for any Technical Specification will not be reduced as a result of this change. This change does not impact the existing NIS or any other system and as such no Technical Specification basis or associated margins of safety are affected.

This change does not adversely impact the Fire Protection System or violate the Updated Fire Hazards Analysis (UFHA). However, a revision to the UFHA to change the fire loading in Fire Zone 1-PB-14-8 due to addition of new cables is required.

Facility Change: 1-88-3110, Revision 1

Title

Demineralized Water System Tie-in to Unit 2

Description

This modification provides demineralized water from Unit 2 demineralized water header to the Unit 1 Condensate Storage Tank (CST), the Primary Plant Makeup Tank (PPMT), the Condenser Hotwells, and the Auxiliary Feedwater Storage Tank (AFWST). This modification upgrades the existing temporary system to a permanent system and provides the preferred de-oxygenated water to the condenser hotwells from the CST header. This modification involves the following:

1. Removing the existing fire hose used for the intertie. Install a new 4" stainless steel (SS) header with a vacuum breaker and indicating flow totalizer.
2. Providing the new SS header (AFW-16271-4"-JN) with a tee for cross connections to the AFWST and the CST. The existing CST makeup line (FES-700-3"-HP) will be used for the cross connections to the CST and the PPMT.
3. Connecting the existing CST makeup line to the condenser hotwells utilizing a 3" SS line to provide a means to supply water from the CST to the condenser.
4. Removing check valve CND-358, gate valves FES-367 and FES-369, globe valve FES-383 and flow meter FM-3 from the existing CST makeup line.

Safety Evaluation

This modification provides a permanent system of conveying demineralized water from Unit 2 to Unit 1 for various usage. The connecting line to the AFWST is attached above the existing Technical Specification required volume of 150,000 gallons. An expansion loop provided at the tank inlet allows the tank volume to be increased to 190,000 gallons with enough margin of safety to support a single failure analysis. Therefore, no possibility of draining the AFWST through the makeup demineralizer line exists. A vacuum breaker is provided at the expansion loop to break siphoning, prevent pipe collapse during transient pressure drops, and to dampen water hammer effects. The condenser quickfill line, which is the intertie between the CST header and the condenser hotwell line, does not connect to the AFWST or any other safety related system. Since all existing accident scenarios and analysis remain bounded, neither the possibility of occurrence nor the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will be increased as a result of this change.

Facility Change: 1-88-3110, Revision 1 (Continued)

Safety Evaluation

This modification provides Unit 1 with a more reliable demineralized water source. The routing of new piping and minor modification to existing piping, removal of inline components do not create any HELBA interaction because the system is low pressure and low temperature and no electrical component is added or modified. Appendix R review determined there is no impact on fire protection system interactions. Therefore, the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA will not be created.

The margin of safety as defined in the basis for any Technical Specification is not reduced. This change has no effect on any of the Limiting Conditions of Operation or Surveillance Requirements of any existing Technical Specifications. As such, no Technical Specification basis or associated margin of safety is affected.

This modification requires a revision to the Units 2 and 3 UFSAR to state that the makeup demineralizer (MUD) supplies the makeup demands for Units 1, 2, and 3.

This change does not adversely impact the fire protection system/program or violate the UFHA, and does not decrease the effectiveness of the security Plan or the Emergency Plan.

Facility Change: 1-88-3364, Revision 7

Title

Modifications to the Auxiliary Feedwater System (AFWS)

Description

As part of the TMI "Lessons Learned" requirements, SCE committed to resolve all concerns related to the plant's capability to respond to certain transients and accidents when assuming a concurrent arbitrary single failure. This change proposed to integrate and automate an existing motor-driven third Auxiliary Feedwater (AFW) Pump G-10W into the existing AFWS while modifying the AFWS configuration to meet the requirements of design basis events coupled with single failure criteria. The change is as follows:

1. Add two AFWS flow control valves (FCV-2300C and FCV-3300A) to the existing four flow control valves for a total of six. Train "A" FCVs will fail close and Train "B" FCVs will fail open on loss of control power.
2. Install three cavitating venturis (FE-3066, FE-3076, and FE-3077) downstream of the AFWS flow control valves to prevent excessive flow out of the ruptured feedwater line during a feedwater line break.
3. Install a cavitating venturi (FE-3083) in the AFW Pump G-10W discharge line to prevent exceeding the maximum flow limit to each SG under any sequence of events independent of the number of SGs in operation. A bypass line with two manual, locked close, series valves will be provided for Dedicated Safe Shutdown (DSD) operations.
4. Re-align the existing turbine driven AFW Pump G-10 to the same electrical train (Train A) as the existing motor driven AFW Pump G-10S to ensure that Train A can provide sufficient flow to the intact SGs in the event of a feedwater line break upstream of the feedwater check valves inside containment (FWLB-U) and a single active failure of the Train "B" AFWS low flow instrumentation.
5. Connect AFW Pump G-10W and its discharge valve to redundant electrical Train "B" to meet single failure criteria, in conjunction with Item 4 above, for a FWLB-U event and a feedwater line break downstream of the check valves inside containment (FWLB-D) or a main steam line break with common cause loss of AFW Pump G-10 and single active failure of AFW Pump G-10S.
6. Provide a manual transfer switch for selecting DSD or normal safety related Train "B" power for AFW Pump G-10W operation.

Facility Change: 1-88-3364, Revision 7 (Continued)

Description

7. Modify the auto-mode control circuit for each AFW Pump and its respective discharge valve to operate upon receipt of SG low level signal (AFWS automatic initiation).
8. Add four flow switches (FSLs 2306 through 2309) to AFW Pump G-10W discharge to provide the required interlocks for pumps G-10 and G-10S to operate as designed in Item 7.
9. Re-design AFW panel C71 and annunciator K04 to integrate AFW Pump G-10W controls and instrumentation into existing AFWS controls and instrumentation, and to meet the human engineering criteria of SONGS 1 Control Room Design Review (CRDR).
10. Add two emergency light fixtures in the AFW flow control valve area and connect to the existing emergency lighting system for use during DSD operation. This light fixture addition is due to the addition of two new flow control valves.
11. Add a Backup Nitrogen System to pump G-10W discharge valve CV-3110 to maintain the valve closed in the event of instrument air loss so that discharge pressure will be allowed to buildup before the valve is opened in the automatic mode.
12. Modify the existing narrow range SG level transmitters (LT-2400A, B, and C; LT-3400A, B, and C) into wide range transmitters in order to provide a redundant safety grade environmentally qualified instruments for verification of AFW flow to the SGs.
13. Revise the Auxiliary Feedwater Storage Tank (AFWST) low level setpoint to reflect the revised TS 3.4.4 required volume of 190,000 gallons.
14. Replace six existing I/P transducers (FY-2300A2, B2, C2 and FY-3300A2, B2, C2) on the AFW flow control valves with new transducers having superior operating characteristics and lower leakage rates.
15. Provide three new branch connections from the three existing chemical feed lines to the main feedwater piping and connect the three branch connections to the AFW piping to the SGs. This will allow the operator to choose chemical injection to the SGs either by way of the main feedwater system or through the AFWS.

Facility Change: 1-88-3364, Revision 7 (Continued)

Safety Evaluation

The evaluation determined the AFWS modifications, in conjunction with the Reactor Protection System modifications, ensure that the applicable acceptance criteria are met for design bases events with a concurrent single active failure. AFWS reliability is improved (i.e., probability of loss of AFWS safety function is reduced) as a result of this modification. Therefore, the probability or the consequences of occurrence of an accident or malfunction of any equipment previously evaluated in the FSA, will not be increased as a result of this change. Units 2 and 3 UFSAR Section 9.2.3.1B, however, requires revision to add that the makeup demineralizer system supplies the makeup demands for Units 1, 2, and 3.

All potential accidents associated with operation of the modified system are bounded by M39419 Revision 1, "Event Specific Single Failure Analysis". The routing of electrical cabling, piping and tubing was designed to minimize new HELB or fire protection interactions, and electrical separation has been maintained or improved to preclude new electrical interactions. Loss of Normal Feedwater and FWLB analyses demonstrate that the AFW system meets maximum AFW flow acceptance criteria for the limiting events assuming the worst single failure. Therefore, this modification will not create the possibility for an accident or malfunction of a different type than any previously evaluated in the FSA.

The purpose of this change is primarily to obtain a configuration which will meet the requirements of design basis events with a concurrent single active failure. As such, the margin of safety as defined in the basis for any Technical Specification (TS) will not be reduced as a result of this change. However, TS 3.1.2, 3.4.1, 3.4.3, 3.4.4, 3.5.6, 3.5.7, 4.1.1, 4.1.8, and 4.1.9, which govern both the AFWS and the SG level indication have been revised to incorporate this change. TS 4.4 which governs the Emergency Power System periodic testing has been revised to include the added load of AFW G-10W on Diesel Generator No.2.

This modification does not adversely impact the Fire Protection System/Program. A change to the UFHA, however, is required due to the addition of power cabling and control cabling for dedicated safe shutdown (DSD). This modification does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 1-88-3364.01, Revision 1

Title

Modifications to the Feedwater System (FWS)

Description

As part of the TMI "Lessons Learned" requirements, SCE committed to resolve all concerns related to the plant's capability to respond to certain transients and accidents when assuming a concurrent arbitrary single failure. To meet single active failure criteria and design basis transient acceptance criteria defined in the safety analysis, the FWS and the Containment Spray Recirculation System (CRS) requires modification. This modification consists of changing power sources to the solenoid valves for two of the three FWS flow control valves (FCVs-457 and 458) and their bypass valves (CVs-143 and 144) to achieve independence from the solenoid valve of the remaining FWS FCV-456 and its bypass valve CV-142. This will allow redundancy in isolating the main feedwater lines during safety injection (SI) operations to eliminate the possibility of borated water being diverted to the SGs via the feedwater lines.

Safety Evaluation

This change adds new safety related, seismic category A raceway from a safety related power source (125 Vdc No.2) and eliminates equipment (20 second delay timer) determined no longer necessary by the transient analysis. These changes eliminate a common power dependency and do not alter normal operation of the FCVs or the bypass valves. This change also reconnects the SG high level contacts in parallel with the sequencer contacts to reduce the probability of main steam line breaks with no increase in the probability of the limiting loss of main feedwater events. Therefore, the probability or the consequences of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will not be increased.

This modification will not create the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA since no existing design basis or system function assumed in the analysis is changed. All potential accident scenarios associated with this change are bounded by the existing analysis.

No Limiting Conditions for Operations or Surveillances are affected by this change, therefore, the margin of safety as defined in the basis for any Technical Specification is not reduced as a result of this change.

This change does not adversely impact the fire protection system/program or violate the UFHA. The UFHA, however, requires revision to include the additional control and power cabling for equipment required for DSD operation. This modification does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 1-88-3410, Revision 4

Title

Engineered Safety Feature (ESF) Switchover from Safety Injection (SI) Mode to Recirculation Mode

Description

Presently, switchover from the SI mode to the Recirculation mode is performed manually by the control room (CR) operator when the Refueling Water Storage Tank (RWST) level decreases to 21% (approximately 53,000 gallons). The operator is alerted to low-low RWST level by Auxiliary Annunciator Board Window No. 7 which is alarmed by level switch LS-69 and CR RWST level pneumatic indicator LI-950. This modification adds an automatic trip feature to the SI System to trip the feedwater (FW) pumps and SI pumps on low-low RWST level signal. The automatic termination of SI will preclude cavitation of both the charging and refueling pumps which could occur if the RWST level rapidly depletes below 7% if the manual switchover is not performed in a timely manner. The work associated with this modification includes:

1. Installation of two independent channels or trains of RWST level switches, three for each train.
2. Modification of control logic circuitry which initiates automatic closure and opening of SI header valves MOVs-850A, 850B, and 850C upon failure of 125 Vdc power at the SI pump 4160 V switchgear in one train, concurrent with low-low RWST level trip in the other train or low-low RWST level trips in both trains.
3. Installing relays, test switches and indicating lights at the 4160 V switchgear room to modify feedwater pump and safety injection pump control circuits.
4. Relocating the existing pneumatic RWST level indicator LI-950 and add electronic level indicator LI-3020 on the CR vertical board to augment LI-950.
5. Adding an annunciator window on the auxiliary board in the CR for each train of level switches to provide an alarm when any one of the level switches is actuated. Install four reset switchlight modules on C09 board for resetting the two out of three RWST low-low level trip circuit.

Facility Change: 1-88-3410, Revision 4 (Continued)

Safety Evaluation

This modification is designed to promptly terminate high capacity SI flow on low-low RWST level as determined by the coincidental operation of two out of three level switches in each train and to automatically close SI header block valves MOVs-850A, 850B, and 850C upon low-low RWST level in both trains or loss of 125 Vdc control power in one train concurrent with low-low RWST in the opposite train. This ensures that without operator action, sufficient volume remains in the RWST for switchover to recirculation mode precluding cavitation of the charging or refueling pumps due to inadequate RWST level.

Failure of a single level switch will not prematurely terminate SI since two level switches in each train have to actuate to effect the pump trips or closure of the block valves. Failure of one train of 125 Vdc control power following SIS event actuation (no LOP) would not cause a trip on one train of SI and FW pumps on low-low RWST level. If termination of SI occurs beyond 90 minutes concurrent with single failure of 480V Bus No.1 or No.2, manual operator action would be required to trip the SI and FW pumps locally at their respective breakers.

Environmentally qualified cables and materials will be used to connect the level switches to the 4160 V switchgear to preclude common cause environmental failure of SI via the pump trip and the valve closure trip circuits. Load changes to 125 Vdc Battery No.1 and No.2 have been analyzed and battery load profiles/testing requirements have been revised. These loads are well within the margin allowed by the revised profile and the load imposed on Vital Bus No.5 is within the capacity of the inverter.

Under SIS/LOP conditions, tripping of the SI and FW pumps simultaneously upon low-low RWST level reflects a load rejection of approximately 4000 KW on each of the two emergency diesel generators (DG). Based on existing documentation each DG is capable of handling the load rejection without tripping and violating the voltage and frequency requirements. Additionally, a 4300 KW load rejection test was successfully completed for each DG.

Based on the above evaluation, neither the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will be increased. In addition, the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA will not be created. The only event that would be different from the previously analyzed accidents would be spurious, premature trip of both SI and FW pumps on low-low RWST level. The two out of three coincidental logic provides assurance that a single failure would not cause a premature termination of either train of SI. Furthermore, the use of separate logic for each train precludes spurious trip of both trains due to any single active failure.

**Facility Change: 1-88-3410, Revision 4 (Continued)**

**Safety Evaluation**

Surveillance testing of the emergency power, SIS and accident monitoring instrumentation are governed by TS 4.4, 4.2.1, and 3.5.6, respectively. TS 4.4 has been revised to verify the capability of the DGs to reject a load of 4000 KW without tripping; TS 4.2.1 was revised to include surveillance testing of the RWST low level trip instrumentation; TS 3.5.6 Table 3.5.6-1 to add a new RWST level indicator. No other Limiting Conditions for Operation or Surveillance requirements are affected by this change. Therefore, the margin of safety as defined in the basis for any Technical Specification is not reduced by this change. Any design bases and functional design criteria in the FSA is not altered by this change. However, changes to Sections 6.3.2.11.2, 6.3.2.12.2 and Table 7.5-1 of the UFSAR are required to reflect the automatic termination of primary SI upon low-low RWST level.

This change will not impact the Fire Protection System Program or violate the UFHA and will not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 1-88-3480, Revision 1

Title

Spent Fuel Transshipment

Description

Unit 1 is licensed to ship fuel using the air pallet system which was approved by the NRC in a safety evaluation dated January 15, 1976. This proposed transshipment method will utilize a heavier multi-element cask and the Unit 1 gantry crane for transport of the spent fuel cask above the turbine deck instead of the previous method using a single element cask and the air pallet system. All other types of equipment for the handling of the spent fuel cask remain the same at San Onofre Units 1, 2, and 3. Special detailed actions which encompasses the entire transshipment of Unit 1 spent fuel into the Units 2 and 3 spent fuel pools are controlled by a special procedure S0123-X-9, "Transshipment of Spent Fuel Using the IF-300 Cask". SCE has received a certification as a user of the IF-300 cask by the NRC letter dated March 8, 1988.

This change includes the provision for a stainless steel (SS) protector plate for the cask handling area of the spent fuel pool in Unit 1, modifications to the turbine gantry crane, the use of an impact limiting pad on the north turbine deck extension and decontamination pad during cask lifting, the lift heights of the 70 ton cask over the decontamination pad and the transshipment procedure. This change is only for Unit 1. There are no facility changes required for Units 2 and 3, however, the Units 2 and 3 Facility Operating Licenses requires an amendment to clarify the storage of Unit 1 spent fuel in Units 2 and 3.

Safety Evaluation

Handling of the 70 ton cask is in accordance with the Heavy Loads Program at San Onofre which is consistent with the NRC's review and resolution of heavy load issues. Furthermore, the Heavy Loads Program is sufficient to preclude load drop accidents in accordance with NUREG-0612 guidelines. The GE IF-300 cask which will be used for transshipment has been licensed by the NRC. Transport accidents with the cask are precluded by the speed of the tractor trailer not to exceed 5 mph and the vehicle speed in the area of the cask being 10 mph. The turbine gantry crane at Unit 1 is designed for 125 tons and rated at 100 tons. Use of the crane will be in accordance with the requirements and guidelines of the Heavy Loads Control Program. The crane has been modified to accommodate the cask on the west A-frame horizontal beam, which has been structurally evaluated for carrying the 70 ton cask. As part of the transshipment methodology, the cask will be transported along the turbine deck on the horizontal beam of the turbine gantry crane west A-frame leg. A platform for the cask on the horizontal beam, which prevents the cask from sliding, will be provided. Cables will be attached to the crane legs and the top of the cask to prevent the cask from tipping during movement of the crane. The crane's main hook will be attached to the cask to provide a redundant and independent means of restraining and supporting the cask during the move along the turbine deck. In the unlikely event that the hoisting mechanism fails, the cask would still be restrained on the horizontal beam.

Facility Change: 1-88-3480, Revision 1 (Continued)

Safety Evaluation

On the north extension of the turbine deck, a lift of the cask occurs in the area of the decontamination pad. For these lifts, an impact limiter under the cask will be used as the cask is lowered or raised onto the crane horizontal beam. This measure will prevent the cask from penetrating the turbine deck and decontamination pad in the unlikely event of a cask drop.

In the Unit 1 spent fuel pool, a SS protector plate has been installed in the cask handling area to ensure that the safety related liner plate will continue to perform its function and to prevent degradation of the function or seismic qualification of the existing spent fuel pool structure. The SS plate is designed to withstand a vertical drop of the cask. In the unlikely event of a drop, the basemat will crack and have localized yielding but will not affect the overall integrity of the Fuel Storage Building. Leakage to the environment is prevented because the water is contained by the pool liner and the waterproof membrane under the basemat.

Since there are no safety related equipment located underground in the load path, there are no possibilities of the cask and tractor trailer assembly affecting safety related equipment during transport between Unit 1, and Units 2 and 3. the underground fire water system will not be adversely affected because the loads are less than the design load of the piping.

Handling of the 70 ton cask in Units 2 and 3 will be performed in exactly the same manner as any other spent fuel cask at Units 2 and 3. The cask is prevented from tipping over the spent fuel pool by physical and administrative controls. Therefore a drop of the cask is not credible. Also, the maximum lift height of the cask over the operating floor of the Fuel Handling Bldg. is limited to 6 inches and the floor is designed to withstand a drop from 6 inches of the 125 ton cask. Units 2 and 3 FSAR evaluates the use of a 125 ton spent fuel cask. This analysis was evaluated for the 70 ton cask and the consequences resulting from the drop are unchanged. The Units 2 and 3 spent fuel pool storage racks are designed to store Unit 1 fuel. The spent fuel pool level will not be lowered below the minimum level required for Unit 1 fuel handling activities nor below the Technical Specification (TS) limit for Units 2 and 3 spent fuel storage. Administrative controls are in place which prevent Units 2 and 3 fuel handling activities at the lowered spent fuel pool level. Additionally, Units 2 and 3 fuel cannot be picked up inadvertently due to design differences between Unit 1 and Units 2 and 3 fuel and the fuel handling tool design. All previous analyses for fuel handling accidents in the UFSAR still apply.

Facility Change: 1-88-3480, Revision 1 (Continued)

Safety Evaluation

Based on the above evaluation, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the Unit 1 FSA and the Units 2 and 3 UFSAR will be increased. In addition, this change will not create the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA or the UFSAR.

The margin of safety as defined in the basis for any TS is not reduced as a result of this change. The lowering of the water level at the Units 2 and 3 spent fuel pools to accommodate the Unit 1 fuel does not affect the TS since the lowered spent fuel pool alarm setpoint remains greater than the minimum level of 23 feet above the top of the Units 2 and 3 irradiated fuel assemblies in the storage racks. The basis for TS 3/4.9.11 ensures that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. For Unit 1, the transshipment methodology affects TS 4.13, "Turbine Deck Load Bearing Test and Visual Inspection", which requires that a turbine deck load bearing test be performed every four years if the air pallet system is in operation. Since a new method of fuel shipment is being used, TS 4.13 has been changed to delete this requirement. No other existing TS Limiting Conditions for Operation or Surveillance Requirements are affected by this change.

This change does not impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased as a result of this change.

Facility Change: 1-88-3481

Title

Emergency Diesel Generator (DG) Slow Start

Description

DG slow starts for testing and surveillances are specified in License Condition 3.L(6) in order to reduce the cumulative fatigue damage to the engine crankshaft to levels below the threshold of detection under a program of augmented in-service inspection. As specified in Technical Specification 4.4, all emergency diesel starts performed for testing and surveillance purposes will be slow starts (greater than 24 seconds duration) except for the fast start conducted every 18 months during plant shutdowns, and for any other fast start required following specific maintenance involving the fast start capability. This requirement is presently met by procedural means. This method of control, however, has been determined unacceptable for long-term operation since the diesels cannot accept an AUTO START (SIS/LOP) signal during a slow start test. As a permanent fix, the DG manufacturer (IMO DeLaval), proposed a "soft-start" automatic control modification that will reduce peak forces and make the engine accelerate smoothly while transitioning from low speed to operating speed. This modification for DGs No.1 and No.2 include the following:

1. Provide extra contacts as needed for existing relays R4, R7, R9, R10, R1B, R1C, and add a new seven pole "Up to Speed" relay SS-3).
2. Replace existing manual testing timers TD1 and TD2; TD1 with a new manual starting air timer and TD2 with a new field flash timer. Install new TD1 and TD2 relays.
3. Remove contacts R1B and R1C of the "run" relays, add a new auxiliary relay and reset Start timers TD4 and TD5 from 40 seconds to 45 seconds.
4. Install a new fuel limit solenoid valve, a new fuel limit cylinder, a new lever on the fuel rack, tubing from the existing 60 psig instrument air line to the new fuel limit solenoid valve and cylinder.
5. Reroute existing tubing which interferes with the new fuel limit cylinder and bracket, pull new cables for the fuel limit solenoid valve and terminate wires in appropriate junction boxes.

Facility Change: 1-88-3481 (Continued)

Safety Evaluation

This SLOW START modification only alters the manual start circuitry required for testing and surveillances and does not affect the FAST START capability needed in an emergency to provide electrical power to equipment required to achieve a safe shutdown condition following a loss of offsite power. If an emergency start signal is initiated while surveillance testing is being performed, the emergency control circuit will override and cancel the SLOW START and bring the DGs to the nominal voltage and frequency in the shortest time possible. Therefore, the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will not be increased due to this modification. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA will not be created. The DGs provide a mitigation function in response to an accident; they do not initiate or create an accident. Monthly surveillances performed ensures that the DGs will perform their intended function when called upon to operate.

The margin of safety as defined in the basis for any TS is not reduced since this modification does not affect any TS Limiting Conditions for Operation or Surveillance Requirement.

This modification will not adversely impact the fire protection system/program or violate the UFHA. However, a change to the UFHA is required for the resulting additional combustible loading from cable insulation. The effectiveness of the Security Plan or the Emergency Plan is not affected by this modification.

Facility Change: 1-88-3494

Title

Installation of Security Barrier Inside the Turbine Enclosure

Description

This change provides installation of a steel bar barrier for the openings inside the turbine enclosure at the 42 foot elevation. The purpose of the barrier is to preclude unauthorized access into vital areas of the plant from the turbine enclosure.

Safety Evaluation

Neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR, nor possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will be increased by this change. This change enhances the security of the vital areas in the plant and does not adversely impact the function of any equipment, system or structures important to safety. The barrier has been designed such that existing access to the non-vital valves and other non vital equipment will be maintained. The barrier will be connected to an existing safety related concrete floor to preclude the barrier from becoming a missile during a seismic event. This change will not downgrade the integrity of the fire barriers of the existing fire zones including the non-rated reinforced concrete floor. Therefore, all probabilities, consequences, and accident scenarios remain bounded by the existing analysis.

The margin of safety as defined in the basis for any TS will not be reduced by this change. The turbine cycle is governed by TS 3.4 and as discussed above, this change does not adversely impact the function of any system, equipment or structure. No TS Limiting Conditions for Operation or Surveillance Requirements are affected, therefore, no TS basis or associated margin of safety is affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan will not be decreased as a result of this change. The Security plan, however, requires a revision to incorporate the barrier.

Facility Change: 1-88-3496, Revision 2

Title

Feedwater/Steam Flow Mismatch Reactor Trip Modification

Description

Licensee Event Report (LER) 86-007, Docket No. 50-206, documented a failure of the single main steam header pressure transmitter PT-459 which rendered the feedwater/steam flow mismatch reactor trip inoperable. A single failure analysis (SFA) performed for the RPS determined in addition to PT-459 single failure concern, additional single failures could potentially disable the mismatch trip, namely: 1) the power supplies are not channelized and a single failure in this configuration could result in the failure of the mismatch trip and, 2) a single active failure in conjunction with single steam generator events, i.e., feedline break, could result in failure of the mismatch trip. This modification shall revise the mismatch trip configuration such that all single failure criteria and design basis transient acceptance criteria for the feedwater/steam flow mismatch reactor trip are met. This modification includes: replacing the existing steam flow computers, feedwater flow computers, feed flow/steam flow comparators including their 15 Vdc common power supply along with throw over switching assembly and density correction ranging amplifier PM-459 with three new channelized nuclear qualified Foxboro Spec. 200 micro nests including individual nest power supplies. A P-8 permissive for the overall high and low trip, a minimum floor value for PT-459, and isolation devices for PT-459 input and Feedwater Control System (FWCS) outputs will be added.

Safety Evaluation

This modification is a replacement of existing equipment with more reliable and qualified equipment for the feedwater/steam flow mismatch reactor trip and the FWS. No new failure modes or effects to the feedwater flow computer amplifier circuits are added. In fact this would eliminate the potential channel common failures of these circuits due to downscale failures in the PT-459 instrument loop, and the feedwater flow computer power supply system. Therefore, this modification does not increase the probability or the consequences of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSA nor does it create the possibility of an accident or malfunction of any type than any previously evaluated in the FSA. However, this modification requires changes to Sections 4 and 8 of the FSA to revise the existing design bases.

The margin of safety as defined in the basis for any TS will not be reduced. TS 2.1 and 3.5.1 have been revised to incorporate the changes resulting from this modification. No other TS Limiting Conditions for Operations or surveillance requirements are affected by this modification.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA nor does it decrease the effectiveness of the Security or Emergency Plan.

Facility Change: 1-88-3501, Revision 1

Title

Re-alignment of Power Trains for MOV-1100D and MOV-22

Description

As part of SCE's commitment in resolving NRC concerns associated with the capability of the plant to respond to certain transients and accident conditions assuming an arbitrary single failure, the power supply for MOV-1100D (Recirculation to Charging Pump valve) and MOV-22 (Feedwater block valve) will be re-aligned. Both valves are currently powered from MCC-3(B03), which is located in the turbine building. MOV-1100D will be re-aligned to a motor control center (MCC) on the same train as it's sequencer signal to provide true redundancy to charging pump suction valve MOV-1100B for a Loss of Coolant Accident (LOCA). MOV-22 will be re-aligned to an MCC in a benign area to prevent common-cause loss of this valve due to harsh conditions at B03 during a Main Steam Line Break (MSLB) in the turbine building. This modification, which involves the Safety Injection System/Recirculation System and the Feedwater System, disconnects existing power feeder to MOV-1100D and MOV-22 from MCC-3. MOV-1100D will be connected to MCC-2(B02) and MOV-22 will be connected to MCC-1(B01) via new cable and conduit system. Existing electrical components in B03, (i.e., relays, starters, etc.) will be removed and used in the respective valve's MCC (B01 and B02).

Safety Evaluation

This modification does not affect the safety function of the affected systems nor the control logic of MOV-1100D or MOV-22. This modification only changes the power supply assignment for the valves to eliminate certain common mode failures for the applicable design bases events from the single failure analysis performed. The components used and the routing of new circuits are designed to ensure that the affected systems and the separation of redundant electrical components are maintained. Therefore, neither the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will be increased. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA will not be created.

This modification does not impact any TS Limiting Conditions for Operation or Surveillance Requirements, therefore, the margin of safety as defined in the basis for any TS will not be reduced. This modification does not adversely impact the Fire Protection System/Program or violate the UFHA. However, the UFHA requires revision for MOV-1100D and MOV-22 safe shutdown operations. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this modification.

Facility Change: 1-88-3501.01, Revision 1

Title

Feedwater System Modifications to Meet Single Failure Criteria

Description

This modification, in conjunction with other modifications of the feedwater system to meet single failure criteria and design basis transients acceptance criteria, involves replacing main feedwater system (FWS) block valves MOV-20, MOV-21, and MOV-22 with valves that are environmentally qualified (EQ) and have the feature to close within ten seconds after receiving a Safety Injection Signal (SIS). The replacements will meet EQ requirements for the applicable plant area (Area 2.2). This modification will aid in providing isolation redundancy of the main feedwater lines during SIS operations to eliminate the possibility of uncontrolled feedwater addition to the steam generators during a MSLB or LOCA.

Safety Evaluation

This modification is essentially a replacement of similar equipment and does not adversely affect any system functions. Though the replacement valve actuators impose higher load currents because of increased horsepower (HP) rating, the total loads on 480V MCCs-1 and 2 are within rated capacity and only results in an additional 12 HP load on DG Train 1 and 6 HP on DG train 2 under SIS/LOP conditions. These load increases are less than 0.2% of the total DG load, which is expected to remain well below the proposed TS limit of 6000 KW. The 10 second quick closure time for the replacement valves will not create a water hammer or dynamic loads beyond the design limit of the existing piping. This modification combined with the modifications in Facility Change 1-88-3364.01, Revision 1 will meet the single failure criteria for each of the three FWS flowpaths with redundant isolation capability within 10 seconds after receipt of a SIS. This modification does not change any existing design bases or system function from that assumed in the safety analysis and there are no new seismic, electrical, HELB or fire protection interactions. Therefore, neither the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSA will be increased. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the FSA will not be created.

This modification has no impact on existing TS Limiting Conditions for Operation or Surveillance Requirements. Therefore, the margin of safety as defined in the basis for any TS is not reduced. A revision to the FSA will be made to include that upon receipt of an SIS signal, the feedwater block valves, the flow control and bypass valves automatically close.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA, nor decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 1-88-3501.02, Revision 1

Title

Main Feedwater Flow Control Valves and Bypass Valves Modification

Description

To meet single failure criteria and design basis transient acceptance criteria for the main feedwater (FW) isolation function of the Safety Injection System (SIS), this modification will add new, redundant, series solenoid valves to each FW bypass valves (CV-142, 143, and 144). This precludes a single failure from occurring which could prevent closure of the bypass valves within 10 seconds following receipt of SIS signal. Timely closure of the valves is required to prevent containment overpressure as evaluated by the containment analyses for design basis MSLB. The new solenoid valves will be powered and actuated from the opposite train of the existing solenoid valves. Additionally, this modification will add a bypass solenoid valve to each main FW regulating valve (FCV-456, 457, and 458) hydraulic dampers (snubbers) to ensure the regulating valves also close within 10 seconds after receipt of a SIS. These new solenoid valves will be actuated from the same automatic SIS as the existing solenoid valves on each of the three FW regulating valves.

Safety Evaluation

As a result of this modification, each bypass valve will have two independent solenoid valves. Therefore, electrical failure of one solenoid valve cannot affect and block the capability of the other valve. Mechanical failures of either solenoid valve or of the bypass valve will not affect the upstream electro-hydraulic isolation valve. Closure of the feedwater regulating valves within 10 seconds is assured by adding a bypass solenoid valve to the hydraulic dampers. Isolation redundancy for the regulating valves is provided by block valves MOV-20, 21, and 22. Components used in this modification are selected to ensure the affected systems would not be degraded due to exposure to accident or environmental conditions. The only events that could potentially be affected by this modification are those involving failure of a main FW regulating or bypass valve circuit and/or isolation train. However, normal regulating and bypass valve operation are unaffected, and FW isolation for accidents is improved by correcting the FW isolation single failure deficiencies. Therefore, neither the probability of an occurrence nor the consequences of an accident or malfunction of equipment important to safety previously evaluated in the FSA will be increased. The affected circuits will be routed to preclude HELB interactions and are EQ to meet any new 10 CFR 50.49 (b)(2) circuit interactions to preclude any new failure mode. As such, the possibility of an accident of a different type than any previously evaluated in the FSA will not be created.

Facility Change: 1-88-3501.02, Revision 1 (Continued)

Safety Evaluation

TS 3.3.1 and 4.2.1 govern the Safety Injection and Containment Spray System. Although not specifically identified in these TS, The FCVs and bypass valves are actuated on a SIS to terminate main FW flow to the SGs during postulated MSLB with concurrent failure of one SI train to limit core damage and containment pressure consequences. As such these valves are considered "associated valves" in the context of TS 3.3.1, and TS 3.0.3 applies if these valves become inoperable. This modification does not adversely impact any TS Limiting Conditions for Operation or Surveillance Requirements, therefore, the margin of safety as defined in the basis for any TS is not reduced.

This modification does not adversely impact the fire Protection System/Program or violate the UFHA. A revision to the UFHA will be made to incorporate the changes in DSD operations as a result of this modification.

The effectiveness of the Security Plan or the Emergency Plan is not decreased by this modification.

Facility Change: 1-88-3501.03, Revision 2

Title

Recirculation Valve MOV-358 Power Supply Modification

Description

As part of SCE's commitment with the NRC to resolve all concerns relative to the plant capability to respond to certain transients and accident assuming an arbitrary single failure, a single failure analysis (SFA) was performed which identified existing single failure susceptibilities. This includes single failure for the post LOCA recirculation function of redundant recirculation valves (i.e., MOV-1100D and MOV-358) associated with the swing bus (480 V Bus No.3 via MCC-3) during re-alignment from Train 1 to Train 2 on a SIS/LOP signal. Since this transfer scheme is dependent on both DC power trains (125 Vdc Bus No. 1 and 2) for breaker control power, loss of either DC power train would affect the required bus transfer and could result in a corresponding loss of MCC-3 power to the recirculation valves. Facility Change 1-88-039 Revision 1 subsequently changed this transfer scheme so that the sequencer signal, which re-energizes switchgear No. 3 from Train 2, was removed. However, in the event of a LOCA with Loss of Offsite Power (LOP) and single failure of one DC train, the swing bus could still remain de-energized concurrent with the loss of Train 1 or Train 2 bus.

To meet single failure criteria and design basis transient acceptance criteria, a modification to the Recirculation System (RS) is required. Modifications associated with MOV-1100D are covered by Facility Change 1-88-3501. This modification involves connecting MOV-358 to the existing MOV-850C uninterruptible power supply (UPS). Since the existing MOV-850C UPS battery (D-19) cannot adequately provide the capacity required for the revised load profile for operating both MOV-850C and MOV-358, the former Security UPS battery (D-20) will be used. This configuration will preclude the loss of power to the valve during the 30 minutes required before operator action can be credited to restore power to the swing bus. In addition, this will ensure that at least 2 of the 3 redundant recirculation valves (MOV-356, 357, and 358) can be remote-manually opened during LOCA with concurrent LOP to provide recirculation flow to the reactor core.

Safety Evaluation

This modification only adds MOV-358 to the existing MOV-850C UPS. The control logic of either valve is unchanged and the safety function of the SI/RS is unaffected. Connecting MOV-358 to a UPS ensures that power is always available to provide redundancy to the other two recirculation valves. The switchover to the former Security battery, which has a larger capacity than the existing UPS for MOV-850C, ensures the valve opening and closing requirements during an accident will be met. Circuit breakers are provided each to MOV-850C and MOV-358 so that any failure in the circuitry of one valve will be isolated and will not prevent the other valve from performing its intended safety function. The components used are selected to ensure that the affected systems are not degraded and the new circuits will be routed in a manner such that the physical separation from other existing circuits of different trains are maintained.

Facility Change: 1-88-3501.03, Revision 2 (Continued)

Safety Evaluation

Although this modification does require a revision to UFSAR Section 8.3.2 due to the switchover to the former Security battery D20 from the existing D19 battery for MOV-850C UPS, it will not affect the design bases of any safety related system. All potential accidents and consequences are bounded by existing analysis. As such, this change does not increase the consequences or probability of occurrence of an accident evaluated in the UFSAR, nor does it create the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR.

The margin of safety as defined in the basis for any Technical Specification is not reduced. The systems and components affected by this modification are governed by TS 3.3.2 and 3.7. There is no functional change associated with this modification, including MOV-850C UPS function. As such no TS Limiting Conditions for Operation is adversely impacted. TS 3.3.2, "Shutdown Status" and TS 3.7, "Auxiliary Electrical Supply", however, have been revised to reflect the addition of MOV-358 load to the MOV-850C UPS.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA. A change to the UFHA is required to reflect the decrease in combustible loading due to the removal of the existing MOV-850C UPS battery D-19. The effectiveness of the Emergency Plan or the Security Plan is not decreased by this modification. The former security battery D20 has been disconnected from the Security UPS to ensure there is no interaction between the safety related battery and the non-safety related Security UPS. The security UPS was previously modified such that the security loads are now powered from the Units 2 and 3 and the only remaining load is a non-security load.

Facility Change: 1-88-3517 Limited Change Package (LCP)

Title

Replacement of Anaconda Cables

Description

This limited change involves replacing existing Butyl-Rubber insulated Anaconda cables, which have been determined to be nearing the end of their qualified life, with environmentally qualified (EQ) cables. These cables are for: MOV-19; solenoid valve of control valve CV-412; pressure switch PS-80; limit switches ZSO-1410, ZSC-1410, ZSO-1411, ZSC-1411; MOV-1100B and MOV-1100D; solenoid valve of control valve CV-406A and CV-406B; and, Breaker CBT45B for Pump G-45B. Existing cables will be abandoned in place and safety related cables will be installed as specified.

Safety Evaluation

Replacing the existing cable with IEEE 383-1980 EQ cables ensures that the cables will perform their required function during all postulated events. The cable amperage capacity is not affected by this change and the existing supports are verified to be adequate to carry the additional load. These cables will be laid in a tray and the trays will be filled to no more than the allowed combustible loading in the areas. As such, any potential accident scenarios, consequences, and probabilities are bounded by the existing analysis. Neither the probability of an occurrence nor the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSA is increased. Additionally, the possibility of an accident or malfunction of a different kind than any previously evaluated in the FSA will not be created.

The margin of safety as defined in the basis for any TS is not reduced. The affected components are part of the either the Reactor Coolant System, the Chemical and Volume Control System, the Turbine Plant Cooling Water System the Recirculation System or the Boric Acid System. Replacement of the cables does not alter or degrade the function of the affected systems, and no TS LCO or Surveillance Requirements are affected.

This change does not adversely impact the Fire Protection System/Program or violate the FHA. A change to the UFHA, however, is required to reflect additional fire loadings from this change. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 1-88-5113.02 Revision 1

Title

480 V Switchgear Bus-Tie Breaker Trip on SIS/SISLOP

Description

Prior to the recent EQ effort, an existing Safety Injection Signal/Safety Injection Signal coincident with Loss of Offsite Power (SIS/SISLOP) actuated Sequencer 2 contact, in the closing circuit of tie breaker 52-1203, provided automatic transfer of Switchgear (SWGR) 3 bus from station service transformer (SST) 3 to SWGR 2. SST 3 is the normal power supply for SWGR 3 through breaker 52-1303, which is automatically tripped on SISLOP from Sequencer 2. SWGR 3 feeds motor control center (MCC) 3, which is not qualified for the potential steam environment where it is located. In the event of a main steam line break (MSLB) outside containment, malfunction of components in MCC 3 could cause spurious operation of equipment that could potentially result in SST and emergency diesel generator overloads. This automatic transfer feature was removed as part of the EQ work to prevent automatic re-energization of SWGR 3.

However, in a configuration where SST 3 is out of service and SWGR 3 is supplied from either SWGR 1 or 2, SWGR 3 could be automatically energized immediately following restoration of power to the supply bus unless the tie breaker is tripped by manual operator action. This is due to the absence of an automatic trip feature actuated by SIS or SISLOP on tie breakers 52-1103 or 52-1203.

This modification will add a SIS/SISLOP actuated sequencer contact in the opening control circuit of each tie breaker to ensure that the tie breakers to SWGR 3 are automatically tripped on an accident signal. Thus, SWGR 3 can be supplied from either SWGR 1 or 2 when SST 3 is out of service and in the event of a MSLB outside containment potential 10 CFR 50.49(b)(2) interactions from MCC 3 component malfunctions will be precluded.

Safety Evaluation

The addition of the SIS/SISLOP actuated contacts on the tie breakers ensures that automatic re-energization of SWGR3 is prevented under SIS/SISLOP condition. This eliminates potential 10 CFR 50.49(b)(2) interactions resulting from unqualified MCC 3 component malfunctions. Further, since this addition only affects automatic re-energization of SWGR 3 in the absence of a single failure, the existing failure modes and effects analysis remain bounded. The SWGR 3 loads required by the analyses following SIS/SISLOP can still be restored by operator action as assumed in the existing analyses. Therefore, neither the probability or consequences of an accident or malfunction of equipment important to safety previously evaluated in the FSA will be increased.

Facility Change: 1-88-5113.02 Revision 1 (Continued)

Safety Evaluation

This modification will not degrade existing separation. All of the installations are designed in accordance with safety related seismic category A criteria, as well as per electrical train separation requirements. No change in system function, as previously evaluated, is involved and the existing separation will not be degraded. Hence, no new interactions are created and the possibility of a new or different type of accident or malfunction of any previously evaluated in the FSA will not be created.

There is no impact to the TS for the additional loading of 2 amp momentary load (breaker tripping) and a 64 milliamp continuous load (Agastat relay) on Battery No.1 and Battery No.2. The additional loading to Battery No. 1, although insignificant, impacts the TS battery replacement criterion/surveillance requirements. No TS Limiting Conditions for Operation is impacted. No further change to the battery TS is necessitated since this requirement was previously addressed in Facility Change 1-88-3003. TS 4.4, "Emergency System Periodic Testing", is being revised to reflect the change notwithstanding the fact that this modification can be installed and the plant operated in accordance with the existing TS surveillance requirements. Therefore, the margin of safety as defined in the basis for any TS will not be reduced.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased as a result of this modification.

Facility Change: 2-84-6238, Revision 3

Title

Letdown System (CVCS) Modifications

Description

This modification to improve the characteristics and control of flow through the boronometer and process radiation monitor include:

1. Providing an optimum flow of 8 and 5 gpm respectively for the boronometer and process radiation monitor downstream of the filter instead of upstream to avoid crud in the system.
2. Replacing the existing flow indicator downstream of the boronometer and process radiation monitor with a venturi flow element having a flow indicating transformer.
3. Adding a control valve in the main letdown line including isolation valves, bypass valves, and a spring loaded check valve; throttle valves downstream of the boronometer and process radiation monitor.
4. Providing a High Flow Annunciation at the main control panel and flow indication to the Critical Function Monitoring System for the sample flow through the boronometer and process radiation monitor instruments.

Safety Evaluation

This change does not adversely affect the operation or system function of the CVCS. The design bases of the CVCS, as originally intended, remains unaffected by this change. The existing seismic analysis, high energy line break analysis, and fatigue analysis are determined to have not been affected by this change and as such, all existing accident scenarios, consequences, and probabilities are bounded by the existing analyses. The failure modes and related effects are not different from that previously analyzed, since the design bases and operating limits are unaffected. Therefore, neither the probability of occurrence nor the consequence of an accident or malfunction of equipment important to safety previously evaluated in the FSAR will be increased. In addition, this change will not create the possibility of an accident or malfunction different than any previously evaluated in the FSAR. A revision to the FSAR to reflect this change is included in the UFSAR.

This change has no effect on TS Limiting Conditions for Operation or Surveillance requirements. Therefore, the margin of safety as defined in the bases for any TS is not reduced by this change. This change does not adversely impact the Fire Protection System/Program or violate the UFHA. A change to the UFHA was required to add combustible loading, which was less than the maximum permissible, to the affected fire area. The effectiveness of the Security Plan or the Emergency Plan was not decreased by this change.

Facility Change: 2-84-6252

Title

Condenser Vacuum Trip Control Modifications

Description

The circulating water system intake and discharge structure are periodically "heat treated" to kill marine growth. During heat treating operations, the temperature of the water flowing in the structures is increased beyond normal operating temperatures resulting in a reduction of condenser vacuum. The turbine trip, which is normally set at 4-1/2" Hg, is changed to 6-1/2" Hg to permit heat treating without causing a turbine trip. This higher setpoint is allowable only if the turbine power is above 75% to prevent turbine blade damage due to "buffeting". This modification to change the turbine trip control system provides control operator capability to override automatic return of condenser vacuum setpoint from 6-1/2" to 4-1/2" Hg at less than 70% power. This feature allows the operator time to take actions in order to prevent a turbine trip.

Safety Evaluation

The probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will not be increased. The circulating water system has no safety design basis, although parts of the system are necessary for operation of the ultimate heat sink. This change does not affect the safety of the plant or operation of other safety related equipment. All potential accidents and consequences are bounded by existing analysis. Therefore, the probability of an occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will not be increased. Additionally, this change will not create the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR.

The margin of safety as defined in the basis for any Technical Specification will not be reduced. The equipment affected by this change is neither governed by a TS nor impacted any TS Limiting Conditions or Surveillance Requirements.

This change does not adversely impact the Fire Protection system/Program or violate the UFHA. The required change to the UFHA ensures that the increased combustibles and fire loading resulting from this change are incorporated. The effectiveness of the Security Plan or the Emergency Plan is not decreased as a result of this change.

Facility Change: 2-85-6404

Title

Containment Purge Isolation System (CPIS), Control Room Isolation System (CRIS), and Fuel Handling Isolation System (FHIS) Bypass and Status Indication Circuit Modification

Description

This change modifies the CPIS, CRIS, and FHIS actuation logic to provide a locking bypass mode, a channel reset feature, channel actuation and bypass status annunciation/indication functions. The principal cause of inadvertent or spurious actuations of these Engineered Safety Feature Actuation Systems (ESFAS) during performance of maintenance activities in the radiation monitoring cabinets has been attributed to the absence of a locking bypass mode feature. This modification will eliminate the potential cause of these actuations and provide the operators the necessary system status information.

Safety Evaluation

This change is in accordance with the San Onofre Units 2 and 3 ESFAS design criteria and does not adversely impact the design functions of the systems affected. All the components used/added by this change are compatible with the required environmental and seismic qualifications criteria. No new high energy line is added and no existing high energy lines are affected by this change. No combustible material is added and no existing fire protection system or devices are affected. As such, the design basis for accident analysis, accident and equipment malfunction analysis and the high energy line break analysis remained unchanged. Therefore, the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will not be increased. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR will not be created. However, changes to the FSAR have been made to reflect this modification.

The margin of safety as defined in the basis for any TS is not reduced as a result of this change. No other TS Limiting Conditions for Operation or Surveillance Requirements are affected, therefore, neither TS bases or the associated margins of safety are affected. This change does not adversely impact the Fire Protection System/Program or violate the UFHA and the effectiveness of the Security Plan or the Emergency Plan is not decreased.

Facility Change: 2-86-6505

Title

Modifications to the Sprinkler Systems in the Control Building

Description

NFPA 13, 1975 edition, Appendix B, section B-4-2.3 states that for proper water distribution, sprinklers should be located or spaced such that any interference is held to a minimum. In certain areas in the Control Building, sprinkler heads are located below cable trays, above obstructions, or where heat collection in the event of a fire would be inadequate to initiate operation of the sprinkler systems.

This change modifies the sprinkler systems on the 9'-0" level in Room 105 and on the 50'-0" level in Rooms 301A, B, C, D, and E to conform to NFPA requirements. Three sprinklers are added and 16 sprinklers are relocated on the 9'-0" level; 12 sprinklers are added and 85 are relocated on the 50'-0" level. In addition, three sprinkler heads on the 50'-0" are changed from 17/32" size orifice to either 7/16" or 1/2".

Safety Evaluation

This change involves additional coverage and redistribution of the existing sprinkler systems. Any of the functions or design criteria of the fire protection system described in the UFSAR is not affected by this modification. Rather, this change enhances the spray coverage of the affected areas and results in compliance with NFPA requirements. All accident scenarios, probabilities, and consequences remain bounded by the existing analysis. Therefore, the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased. In addition, the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created.

The margin of safety as defined in the basis for any TS will not be reduced by this change. This modification provides conformance to NPF 13, provide full area coverage for fire extinguishing and enhances the functional design and operation of the system. TS Limiting Conditions for Operation or Surveillance Requirements are not affected by this change.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. A change to the UFHA, however, is necessitated to reflect this change. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 2-86-6571

Title

Computer Room Heating, Ventilating and Air Conditioning (HVAC) Upgrade

Description

This change upgrades the HVAC system in the computer room to improve air distribution for the new Plant monitoring System (PMS) computer equipment. The existing computer room HVAC, which consist of air conditioning units from a centralized Control Room complex chilled water system, is considered inadequate during hot days and during operation in the control room isolation modes (CRIS and TGIS). In addition, new equipment for the PMS upgrade program adds more heat loads to the existing computer room HVAC. Accordingly, the computer room HVAC has to be modified. This change only affects recirculation unit E-668, which is one of the four chilled water air conditioning units for the computer room. The normal unit E-295 and the emergency units E-418 and E-419 are not affected by this change. This change increases the chilled water piping to permit full cooling capacity, and provides three dedicated booster fans and baffles in E-668 supply plenum to efficiently effect proper air distribution.

Safety Evaluation

This change has no impact on the original design basis or function of the Control Room complex HVAC system during normal and emergency modes as defined in FSAR Sections 9.4.2.1.1 and 9.4.2.2.1. This change will enhance the ability of the computer room HVAC to maintain the required cooling. All accident probabilities, scenarios, and consequences remain bounded by the existing analysis. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will be increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR will be created. The FSAR, however, requires revision to add the booster fans provided in this change.

The margin of safety as defined in the basis for any TS is not reduced as a result of this change. TS 3/4.7.5 governs the Control Room Emergency Air Cleanup System (CREACUS) and this change has no impact on the Limiting Conditions for Operation or Surveillance Requirements for this TS or any existing TS. Hence, no TS basis or associated margin of safety can be affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 2-87-6683, Revision 1

Title

Snubber Reduction Program, Phase I

Description

This change implements the modifications resulting from the Unit 2 Phase I Snubber Reduction Program. This includes removal of approximately 110 safety related mechanical snubbers and the replacement of 62 safety related snubbers with rigid sway struts or guides; modifications of miscellaneous pipe supports (i.e., addition/deletion of pipe supports, addition of structural base, addition of stiffener plates to approximately 35 pipe supports).

The extent of the modifications is limited to snubbers, struts and pipe supports of pipe stress problems PSG-203, 63, 321, 56, 117, 231, 304, 356, 372, and 57. The majority of the snubbers contained in these stress problems have high failure rates and have presented inaccessibility concerns for in-service inspections. These snubbers are located in the Reactor Coolant (RC), Chemical and Volume Control (VC), Nuclear Sampling (SS), Safety Injection (SI), Fuel Storage Pool and Refueling (FS), Steam (ST), and Containment Spray (CS) piping systems. Welding to any piping pressure boundary and reconfiguration of any piping system is not permitted in this change.

Safety Evaluation

This modification will not change the design function of selected piping in the RC, VC, SS, SI, FS, ST, and CS systems containing the removed/replaced snubbers. The optimized configurations of ten pipe stress problems have been verified by stress analysis in accordance with NRC criteria and the ASME code. Removal and/or replacement of these snubbers will have no adverse impact on the system function and pressure boundary of the piping system. All accident scenarios, consequences, and probabilities remained bounded by the existing UFSAR. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased. The UFSAR, however, requires revision to reflect the change in this modification.

Neither the function nor the integrity of the pressure boundary of any system affected by this modification will be adversely impacted. However, stresses higher than those indicated in the original analysis will result. The resultant stresses were evaluated against Code allowables and are to be determined within limits. As such, the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased.

Facility Change: 2-87-6683, Revision 1 (Continued)

Safety Evaluation

Fatigue and functional analyses were performed to determine worst case failure of the remaining snubbers on the piping system either in the "free" or "locked up" positions and to determine the remaining snubbers "drag forces" on the piping nozzles. The analyses determined that the optimized snubber configuration will neither create nor introduce any possibility of an accident or malfunction different from any previously evaluated in the UFSAR.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. Although the Tables listing safety related snubbers have been deleted from the TS, snubber accountability will be maintained in the snubber surveillance procedure. Therefore, this change has no effect on any TS Limiting Conditions for Operation or Surveillance Requirements on any existing TS. As such, no associated basis or margin of safety is affected.

This change will not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security plan or the Emergency plan will not be decreased by this change.

Facility Change: 2-88-6622

Title

Vital Area Security Door Modifications

Description

During refueling outages, personnel access to containment is facilitated by extending the containment security boundary. This resulted in the need to post a 24-hour watch to ensure authorized personnel access control at the extended boundary.

This modification will provide card-reader controlled containment access for convenient entry or exit of authorized personnel, improved traffic control, and substantial cost savings in security manpower. This modification includes:

1. Adding card readers with locks and alarms to doors at the laundry facility (C2-406) and the Fuel Handling Building stairway (FH2-403).
2. Modifying door FH2-402 for card reader access to the patio roof where tools used for containment work during outages are stored.
3. Replacing the existing single C2-406 door with two doors of similar fire rating. To maintain the existing access capability for large size equipment, a removable mullion will be provided between the two new doors.
4. Installation of access control panel, junction boxes, conduits and cables between the card reader system and the modified security panel

Safety Evaluation

The configuration of the temporary vital area boundary extension during refueling outages is an NRC approved security practice. The vital area boundary as shown in the Security Plan is restored after completion of the outage. This modification does not change any design bases and will not adversely impact any safety related component or system. Procedures utilized in the installation of cables/components, security doors/fire doors are similar to those for the existing design. All potential accident scenarios and consequences are bounded by the existing analysis. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR is not increased.

The structural adequacy of the new replacement fire/Security doors is consistent with the structural adequacy of the existing door. As such, the vital area barrier will not be impaired or degraded. Installation and operation of the equipment is similar to that of the existing plant systems. Therefore, the consequences of an accident or malfunction of any equipment previously evaluated in the UFSAR is not increased.

**Facility Change: 2-88-6622 (Continued)**

**Safety Evaluation**

The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created, since no new hazards or interactions with existing systems are created. Hence, all potential accident scenarios are bounded by the existing analysis.

The margin of safety as defined in the basis for any TS is not reduced. This modification, which augments the plant security system, will not impact any TS Limiting Condition for Operation or Surveillance Requirement. As such, no TS basis or associated margin is affected.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA. The reconfiguration of a single 3-hour fire door to two new 3-hour fire doors requires a change to the UFHA. This modification does not decrease the effectiveness of the Security Plan or the Emergency Plan. However, the Security Plan requires a revision to reflect the change in this modification.

Facility Change: 2-88-6629

Title

Component Cooling Water Area, Storage Tank Area, and Auxiliary Building Sumps Drain Modification

Description

The existing drains from the component cooling water (CCW) area sump and the storage tank (ST) area sump flow directly to the radwaste area sump. This results in overloading of the liquid radwaste system and increased cost for radwaste processing. This overloading is generally caused by rainwater collected by the ST area sump and saltwater from the CCW heat exchanger and/or from saltwater system components being drained to the CCW sump during maintenance and servicing activities. The presence of corrosion inhibitors in the CCW water makes the fluid undesirable for processing in the radwaste system.

The existing drain from the Auxiliary Building sump currently discharges to the oily waste sump via the Turbine Building sump. This configuration has caused radioactive contamination of the oily waste sump, the East Turbine Building sump and areas adjacent to the sump resulting in additional processing cost.

This modification will relieve the overloading condition in the radwaste system and reduce the cost of processing radioactive waste. This is achieved by providing a means to direct the drains from the CCW and ST sumps to the Blowdown Process System (BPS) sump instead of the existing configuration which directs the flow to the radwaste system.

Safety Evaluation

The probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased by this modification. None of the initiating components to any of the accidents or malfunctions described in the UFSAR are affected by this modification. The sumps are not safety related. This modification will not change the functions of the CCW area sump, the ST area sump, the Auxiliary Building area sump, the Radwaste area sump, or the BPS neutralization sump. The new piping and valves would make it possible to realign the CCW area sump, the ST area sump or the Auxiliary Building area sump effluent to be pumped directly to the BPS neutralization sump. The BPS sump discharge is monitored for radioactivity and the effluent is manually diverted to the Chemical Waste Tank. The CCW and ST area sump pumps will be maintained in manual operation to prevent overflow of the BPS or radwaste area sump.

Facility Change: 2-88-6629 (Continued)

Safety Evaluation

Evaluation of the CCW, the Auxiliary Building area and the ST area sump pumps determined no motor overload or pump runout will occur due to the resulting higher flow rate for each pump. The BPS sump was also determined to have adequate capacity to accept the flow from the CCW, the Auxiliary Building area, and ST area sumps. Therefore, this change does not affect any safety function previously reviewed in the UFSAR. The design basis in the UFSAR requires a revision to show normal alignment of the CCW area sump and the ST area sump flow being directed to the BPS sump with an alternate alignment to the radwaste area sump. As such all probabilities, consequences, and accident scenarios remain bounded by the existing analysis.

The consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased by this change. The function of any system affected by this change will not adversely impacted. Also, the sumps are not used to mitigate any accidents described in the UFSAR.

The possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created by this change. No adverse impact to the function of any system will result from this change. In addition, locked close valves ensure that inadvertent flow from the containment, safety equipment and penetration area sumps will not occur through this new flow path. As such, none types of accidents or malfunctions are created.

The margin of safety as defined in the basis for any TS will not be reduced by this modification. This change does not impact any TS Limiting Conditions for Operation or Surveillance Requirements. As such no TS basis or the associated margin of safety is affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. This change does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 2-88-6714

Title

Saltwater Connections for Post-Safe Shutdown Earthquake (SSE) Fire Protection

Description

This modification provides a seismically qualified source of water for manual fire fighting capability to areas containing safe shutdown equipment following a safe shutdown earthquake event (SSE) and to provide a system to transfer water for post-SSE fire fighting. The system will supply water from the saltwater pump discharge lines to seismically qualified standpipes near safe shutdown equipment. A single valved Fire Department hose connection will be provided in the 6" discharge vent lines for both saltwater pumps (Train A and Train B). The saltwater will be pumped by an existing seismically qualified mobile pumps which will be located near the intake structure. Each saltwater connection will be equipped with two additional isolation valves per train and will utilize 3' fire hoses with standard 2-1/2" couplings for suction and discharge. When not in use the hoses will be stored in dedicated seismically qualified hose houses along the hose route.

Safety Evaluation

The modification is passive and will not affect normal operation of the Saltwater Cooling (SWC) system or the Fire Protection System (FPS) since an isolation valve isolates the SWC system from the FPS. Following an SSE, the SWC system, fire connections and standpipe system and the water transfer system will provide fire water to safe shutdown areas. Since the saltwater used for fire protection is less than 1% of the 17,000 gpm requirement of the SWC system, there will be no significant change in the function or operation of the SWC. The only change in operation of the FPS post-SSE is the saltwater source of water for the mobile pumps. This modification will improve reliability by providing an unlimited source of fire protection water from properly supported pipe, valves and fittings. Furthermore, following the use of saltwater to put out a fire, an assessment will be performed to determine the impact of saltwater on equipment. Therefore, the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the UFSAR will not be increased. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created. The UFSAR, however, requires revision to incorporate the valved Fire Department connection.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. The equipment involved is not covered by any TS, thus, no Limiting Conditions for Operation or Surveillance Requirements will be affected. Additionally, NRC approval of this SSE fire water capability is required. This change will not adversely impact the Fire Protection System/Program or violate the UFHA. The UFHA, however, requires a revision to incorporate this change. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 2-89-6683.01

Title

Snubber Reduction Program, Phase III

Description

This change implements the modifications resulting from the Unit 2 Phase III Snubber Reduction Program. This includes removal of approximately 30 safety related mechanical snubbers and replacement of 13 of the 30 safety related snubbers with rigid sway struts or spring cans; modifications of miscellaneous pipe supports (i.e., deletion of pipe support steel, addition of a cover plate plates to 4 pipe supports).

The extent of the modifications is limited to piping, piping components, snubbers, struts and pipe supports contained in pipe stress problems PSG-44, 50, 60, 166, 223, 224, 226, 227, and 394. The majority of the snubbers contained in these stress problems have high failure rates and have presented inaccessibility concerns for in-service inspections. These snubbers are located in the Safety Injection (SI) and the Chemical Volume and Control (VC) piping systems. Welding to any piping pressure boundary and reconfiguration of any piping system is not permitted in this change.

Safety Evaluation

This modification will not change the design function of selected piping in the SI and VC systems containing the removed/replaced snubbers. The optimized configurations of the nine pipe stress and pipe support calculations have been verified by stress analysis in accordance with the methodology and criteria of the Project Plan, the NRC criteria and the ASME code. Removal/replacement of these snubbers will have no adverse impact on the system function and pressure boundary of the piping system. All accident scenarios, consequences, and probabilities remain bounded by the existing UFSAR. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased. The UFSAR, however, requires revision to reflect the change in this modification.

Neither the function nor the integrity of the pressure boundary of any system affected by this modification will be adversely impacted. However, in some cases stresses higher than those indicated in the original analysis will result. The resultant stresses were evaluated against Code allowances and determined to be within limits. As such, the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased.

Facility Change: 2-89-6683.01 (Continued)

Safety Evaluation

Fatigue and functional analyses were performed to determine worst case failure of the remaining snubbers on the piping system either in the "free" or "locked up" positions and to determine the remaining snubbers "drag forces" on the piping nozzles. The analyses determined that the optimized snubber configuration will not create or introduced any possibility of an accident or malfunction different from any previously evaluated in the UFSAR.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. Although the Tables listing safety relate snubbers have been deleted from the TS, snubber accountability will be maintained in the snubber surveillance procedure. Therefore, this change has no effect on any TS Limiting Conditions for Operation or Surveillance Requirement any existing TS. As such no associated basis or margin of safety is affected.

This change will not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security plan or the Emergency plan will not be decreased by this change.

Facility Change: 2/3-83-536, Revision 2

Title

Chemical and Volume Control System (CVCS) Letdown Control Valve Modification

Description

The existing letdown system has experienced operating and maintenance difficulties with the letdown flow control valves in conjunction with severe control instability of the back-pressure control valves. This condition is attributed to the large pressure drop across the valves causing instabilities, cavitation, and faster deterioration of the valve seats. In addition, the instability of the system caused by pressure spikes has resulted in the lifting of relief valve 3PSV-9206.

This modification on the letdown portion of the CVCS improves the operability and maintainability of the letdown flow control valves 3LV-0110A and 3LV-0110B, and improves the stability of the back-pressure for the letdown heat exchanger. The modification primarily consists of:

1. Replacing the existing letdown valves with drag type valves along with providing an isolation valve upstream and downstream of the letdown valves to minimize valve cavitation, seat deterioration, eliminate isolation valve leakage during maintenance, and improve control stability of the system
2. Increasing the size of the accumulator inlet valve to 2" and replacing the existing 1" piping connection with a 2" connection, and installing a second accumulator to enhance the effect of suppressing letdown heat exchanger back-pressure transients, which in turn will improve stability of the heat exchanger back-pressure during normal operation
3. Replacing four existing Kerotest packless valves with Kerotest packed valves to eliminate through-the-valve leakage associated with the packless valves
4. Adding four double isolation Kerotest packed isolation valves to permit isolation of the letdown valves
5. Modifying piping and supports, and adding drain valves to sections of piping requiring drainage as a result of the modification

Facility Change: 2/3-83-536, Revision 2 (Continued)

Safety Evaluation

This modification does not adversely affect the operation of the CVCS. The system function remained as originally intended and the design bases are not affected. Rather, this change enhances the system operation and reliability. The existing seismic analysis, HELBA, and the fatigue analysis are not affected by this change and the CVCS is not credited in the accident and transient analysis. As such, all accident scenarios, consequences, and probabilities are bounded by the existing analysis. The failure modes and related effects are not different from those previously analyzed since the components used are similar to those components already installed. There are no changes in the design function of the system and there are no additional administrative or operational constraints imposed on the affected system or additional component. Therefore, neither the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety previously evaluated in UFSAR will be increased. Additionally, the possibility of an accident or malfunction of equipment different than any previously evaluated in the UFSAR will not be created. Tables 9.3-8, 9.3-13, 3.9-6 and Section 9.3.4.2.2 of the Unit 3 UFSAR requires revision to change the letdown valve sizes, add the isolation valves, revise component description, and add the second accumulator.

The margin of safety as defined in the basis for any TS is not reduced by this change. The letdown portion of the CVCS is not governed by the Unit 3 TS and no change to the system design basis or function results from this change. Hence, no TS basis or margin of safety is affected.

This change does not adversely impact the Fire protection system/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased as a result of this change.

Facility Change: 2/3-84-6014.03

Title

Respiratory/Service Air System Modifications

Description

This change provides a new Respiratory/Service Air System (RSAS) in order to meet NUREG 0041 requirements as well as OSHA Standards. This change covers mechanical and civil portions of the work outside of Units 2 and 3 containments and common areas. This includes:

1. Providing three 1200 SCFM air compressors, complete with air receivers and instrumentation, an inlet air duct manifold, louver/filter unit, duct supports, a service platform to the louver/filter unit, and a discharge air piping manifold to be connected to the existing service air header inside the Unit 3 Turbine Building.
2. Providing moisture traps and drain piping to the Respiratory/Service Air piping system, equipment drain piping to the nearest floor drains.
3. Modification of all hose stations in radioactively contaminated areas outside containment to provide respiratory/service air connections at each existing service air stations.
4. Provide 19 additional respiratory/service air hose stations, provide zero leakage type check valves in the branch air piping to prevent radioactive contamination of the RSAS.
5. Provide a removable pipe spool between the Instrument Air System and the RSAS to be used during emergency conditions with authorization from Health Physics, and provide a breakout pipe spool in the Unit 3 Turbine Building to be used for flushing and cleaning the header.
6. Provide concrete foundations for the compressors and air receivers.

Safety Evaluation

Neither the probability of occurrence or the consequences of an accident or malfunction of any equipment previously evaluated in the FSAR is increased nor the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR is created as a result of this change. FSAR Section 9.3.1.1 discusses the design bases of the Compressed Air System (CAS) which currently combines the Service Air System (SAS) and the Instrument Air System (IAS). The existing CAS is not safety related. This change will separate the SAS from the IAS, integrate the SAS into the RSAS, and improve the system capability in relation to respiratory use and enhance the IAS by making it independent from the SAS. The FSAR requires a revision to reflect the addition of the RSAS and the changes to the CAS.

Facility Change: 2/3-84-6014.03 (Continued)

Safety Evaluation

The margin of safety as defined in the basis for any TS is not reduced by this change. This change has no impact on any TS Limiting Conditions for Operation or surveillance Requirements. Hence, no TS basis or margin of safety is affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 2/3-85-078

Title

Installation of Blind Flanges on the Containment Purge Line

Description

This change will install blind flanges outboard of the Containment Purge isolation valves at Penetration 18 and 19 to serve as another barrier in the event the isolation valve leakage exceeds Technical Specification (TS) limits. The containment purge ducting and supports will be modified to accommodate the blind flanges. Valves will be provided to facilitate leak checking of the flanges. The flange and duct modification will be designed and installed in accordance with Seismic Category I and Quality Class II requirements. Access platforms, designed in accordance with Seismic Category II/I Quality Class III to prevent damage to safety related equipment and systems located in the vicinity of the platforms, are provided to facilitate flange installation and removal.

Safety Evaluation

Neither the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety nor the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR is increased by this modification. The containment purge system has no safety design basis in the open (unisolated) configuration as defined in Section 9.4.1.1.1 of the FSAR. However, during a design basis event (e.g., LOCA, fuel handling accident) the containment purge isolation valves are required to close. Isolation valve leakage following closure is limited to acceptable post-accident dose consequences. The TS specifies requirements, including leakage limits, necessary to operate the system within the bounds of the accident analysis. The blind flanges will serve as additional leakage barriers. Operability of the 42" and 8" containment purge isolation valves, including leakage, will not be adversely affected. The flanges, access platforms and hoist meet seismic interaction criteria. Hence, all accident probabilities, scenarios and consequences remain bounded by existing analysis.

The margin of safety as defined in the basis for any TS is not reduced as a result of this change. The containment purge system is governed by TS 3/4.3.2, 3/4.6.1.7, 3/4.6.3, 3/4.9.4, and 3/4.9.9. This change will provide an alternate leakage barrier outboard of the isolation valves but will not affect the function of the valves or any safety related portion of the system. No other existing TS are affected. The only aspects of these TS which require changes are the provisions of TS 3/4.6.1.7, which will permit utilizing the flanges as alternate leakage barriers. This change will not affect penetration leak rate criteria.

This alteration does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 2/3-85-080

Title

Modification of the Existing Heating, Ventilating, and Air Conditioning System (HVAC) for the Radwaste Building Control Panel Room

Description

The existing HVAC system for the Radwaste Building Control Panel Room is provided from two 50% central air handling units with air washers and two temporary window type air conditioning (AC) units. This modification will remove the two window type units and install a new and completely independent HVAC system for this room which will provide adequate cooling for personal comfort and reliable operation of equipment inside the room. The Control Panel Room will be maintained under positive pressure by extending the existing exhaust duct from the Control Panel Room to Valve Room 505C. This configuration of the ductwork will also control the spread of contamination from the Valve Room to the Control Panel Room.

Safety Evaluation

The new AC unit is designed to Seismic Category II, Quality Class III. Radiation dose rate analysis performed due to the addition of two penetrations determined the additional radiation dose level is negligible and no existing calculations are affected. All potential accidents, consequences and probabilities are bounded by the existing analyses; therefore, this change does not increase the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety, nor does it create the possibility of an accident or malfunction different than any previously evaluated in the FSAR. The FSAR, however, requires revision to add the new HVAC system for the Radwaste Building Control Panel Room.

This change has no effect on existing TS Limiting Conditions for Operation or Surveillance Requirements. As such no TS basis or associated margin of safety is affected; therefore, the margin of safety as defined in the basis for any TS is not reduced.

This change does not adversely impact the Fire Protection System/Program or violate the FHA since the penetrations required are on non fire-rated walls. the effectiveness of the Security Plan or the Emergency Plan is not decreased by this modification.

Facility Change: 2/3-85-6066, Revision 2

Title

Installation of a Sodium Hypochlorite Chlorinating System

Description

The existing sodium hypochlorite chlorinating system for treating the intake structure of Units 2 and 3, has been experiencing control reliability and calibration difficulties. In addition, the materials used for construction are considered inadequate and the system is being subjected to chemical precipitation and clogging. This change removes the existing system and installs a new sodium hypochlorite chlorinating system. This new system principally consists of four new variable speed injection pumps, two distribution manifolds, a local control panel and the existing storage tank. The existing automatic flush system used after each injection cycle will be modified and the source of flushing water will be change from nuclear service water to condensate water. The existing sodium hypochlorite main valve FCV-5990 will be replaced with self-cleaning leak-tight valve. A manual operated valve will be installed upstream of FCV-5990 and all piping and component materials from the storage tank to the flushing tee fitting will be replaced with titanium.

Safety Evaluation

This change replaces an existing system with a new system to enhance reliability. There is no change to the design basis or function of the condensate system as a result of this modification. Therefore, any potential accident scenarios, consequences, and probabilities remain bounded by existing analyses. Thus, neither the consequences nor the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will be affected, nor will the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR be created. The required change to the FSAR reflects only the new injection point into the circulating water system intake structure and identifies the operation of the system, which is administratively controlled.

This change does not impact any existing Technical Specification Limiting Conditions of Operation or Surveillance Requirements. As such no technical specification bases or associated margin of safety are affected.

This modification neither adversely impacts the Fire Protection System/Program nor violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 2/3-85-6161.07

Title

Addition of an Elevated Slab on Top of the Radwaste Storage Tank Area

Description

This change adds an elevated concrete slab on top of the Radwaste Storage Tank area of the Auxiliary Building at elevation 63.5 feet. A pre-engineered building, which will house laundry facilities, respirator cleaning, repair and storage, contaminated equipment storage, locker rooms, and rest rooms for men and women, will be supported on this slab. Also included in this change are: stairs and ramps for access from the Penetration area to El. 65.5; utility tie-ins to existing plant systems to include domestic hot and cold water, instrument air, radioactive drains, chemical and sanitary waste; penetrations through the new floor and existing walls and roof of the Auxiliary Building for the utilities; missile shielding for the new access doors into the Penetration area; exhaust tie-ins for the HVAC of the new building to the existing continuous exhaust plenum; electrical power to two new MCC's in a new building; telecommunications tie-ins; fire detection control panel for the fire protection system of the new building; and, removal of existing filtration units AF-14, 15, 16, and 19.

Safety Evaluation

Neither the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will be increased nor the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR will be created. This change will not adversely affect the structural integrity of the existing building or safety related systems. The effect of this addition on the seismic characteristics of the Auxiliary Building is negligible and FSAR Section 3.7 requires a revision to account for this addition. The missile barrier provided within the pre-engineered building will effectively protect all safety related equipment or systems in the Penetration area from tornado missiles. The concrete plugs of the access doors to the Penetration area will not be removed prior to the erection of the missile barriers, which are designed to meet the requirements of the FSAR section 3.5. Existing plant systems that will supply all utility requirements of the pre-engineered building have been determined adequate. All accident probabilities, consequences and scenarios remain bounded by the existing analysis.

The margin of safety as defined in the basis for any Technical Specification will not be reduced. This change has no impact on any TS LCO or Surveillance Requirements. Hence, no TS basis or associated margin of safety is affected. This change neither adversely impacts the Fire Protection System/Program nor violates the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this modification.

Facility Change: 2/3-87-6554.05

Title

Installation of Exposure fire Barriers on Electrical Raceways

Description

A 10CFR50 Appendix R Compliance Assessment identified various safe shutdown required cables which are unprotected from damage due to fire and certain conduits less than 2" are not protected by 1-hour qualified exposure fire barriers. This change will install 1-hour rated exposure fire barriers for identified raceways, replace existing non-qualified exposure fire barriers on conduits less than 2", remove existing barriers which are no longer credited for Appendix R requirements, and the addition of an appropriate type of barrier required by Regulatory Guide 1.75 on identified raceways. This change will result in compliance with 10CFR50 Appendix R Section III.G/III.L requirements.

Safety Evaluation

This change adds exposure fire barriers to enhance the fire protection of safe shutdown cabling. No rewiring, addition of cables or splicing is involved. No design bases is changed, no new hazards or interactions with existing systems are created and this change does not adversely impact safety related systems or components. Hence, all probabilities, consequences or accident scenarios remain bounded by the existing analysis. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the UFSAR is increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR is created. The UFSAR, however, requires revision to incorporate this change.

This change does not impact any TS Limiting Conditions for Operation or Surveillance Requirements. Therefore the margin of safety as defined in the basis for any TS is not reduced.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. However, the UFHA requires a general revision to document the addition of combustible materials and to reflect the results of the Appendix R analysis. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this modification.

Facility Change: 3-85-6123

Title

Rewiring the Critical Function Monitoring System (CFMS) In Order to Receive Excore Log Power Sensor Signal

Description

A Southern California Edison Startup Problem Report identified that in the existing configuration, Excore Linear Power is wired to the CFMS whereas the CFMS requires Excore Log Power. This modification substitutes an Excore Log Power sensor signal for the existing Excore Linear Power sensor signal as input to the CFMS. The CFMS requires the Excore Log Power sensor signal to properly determine loss of reactivity control.

This modification connects the Plant Protection System (PPS) Channel Excore Log Power sensor to the control room termination cabinet 3L129 and moves the CFMS Excore Power input wiring from the Excore Linear Power termination to the Excore Log Power termination at the computer room termination cabinet 3L080. To ensure that operation of the PPS is unaffected, the PPS Channel C Excore Log Power sensor is wired to the control room termination cabinet 3L130 through an isolator. The work also involves internal cable routing between 3L129 and 3L130 and inside 3L130.

Safety Evaluation

The effect of this modification is limited to enabling the CFMS to function as designed. The PPS Channel C Excore Log Power sensor is wired to the CFMS through an isolator, therefore the operation of the PPS is unaffected. FSAR Section 7.6 identifies the CFMS as an operator aid used in the event of an accident and is not required to actuate or influence safety systems involved in accident mitigation. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR is increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR is created as a result of this modification.

The equipment affected by this modification does not impact any TS Limiting Condition for Operation or Surveillance Requirement. Therefore, the margin of safety as defined in the basis for any TS is not reduced.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA. The UFHA, however requires revision to add the combustible loading for the affected fire zone. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this modification.

Facility Change: 3-85-6238.01, Revision 1

Title

Chemical and Volume Control System (CVCS) Modification

Description

This change upgrades the CVCS by minimizing maintenance requirements and reducing routine surveillances in radiation areas. Additionally, this modification will provide improved instrumentation to monitor individual charging pump flow, improved pressure control valves, boronometer and radiation flow control, as well as provide features to reduce personnel exposures to radiation. The change includes:

1. Relocation of the skid-mounted charging pump seal water and lube oil pressure switches for each pump; removal of the existing skid-mounted pressure gauges and installation of new pressure gauges on the wall inside each charging pump room; addition of new seal water and lube oil pressure indicators in the hallway for each pump.
2. Addition of a venturi with a panel mounted flow meter upstream of each charging pump, new pressure tap and panel mounted instrument to each pump discharge, remote fill system for the suction side accumulators of each charging pump and discharge side of one pump.
3. Relocation of each charging pump discharge relief valve discharge piping to downstream of the new venturi location, and removal of existing snubbers in the charging pump rooms in accordance with pipe stress re-analysis and the replacement with pipe supports where applicable.

Safety Evaluation

This change does not alter the design bases of the CVCS as defined in UFSAR Section 9.3.4.1, nor does it affect the design function or reliability of the system affected. This change enhances performance of maintenance activities and reduces personnel exposure for ALARA considerations. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the UFSAR is increased, nor the possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is created. The UFSAR, however, requires revision to reflect this change.

Facility Change: 3-85-6238.01, Revision 1 (Continued)

Safety Evaluation

The margin of safety as defined in the basis for any TS will not be reduced by this change. No change to system design basis or function will result and the existing TS Limiting Conditions for Operation or Surveillance Requirements will not be affected. Due to re-analysis of pipe stresses in the charging pump rooms and optimization of snubber application in accordance with existing plant design criteria, snubbers will be removed and replaced with pipe supports. TS 3/4.7.6, requires revision to reflect this change.

This change does not adversely impact the Fire Protection system/Program or violate the UFHA. A revision to the UFHA is required to reflect the additional combustible loading as a result of this change. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 3-85-6299

Title

Chemical and Volume Control System (CVCS) Modification

Description

As a result of SCE's response to NUREG-0588 and position on Regulatory Guide 1.97, Quality Class II instruments and 1E circuits were installed for the charging pump discharge transmitters (3FT-0212 and 3PT-0212), and boric acid makeup tank transmitters (3LT-0206 and 3LT-0208). SCE's commitment, however, was to provide 1E qualified transmitters in some areas outside containment which had been classified as harsh environments; 1E circuits and 1E qualified, electrically isolated control room indicators were not required and were installed in error.

This modification will abandon the 1E circuits and remove the unnecessary Quality Class II instrumentation with the exception of the four required 1E qualified field transmitters which will be reconnected to the original non-1E circuits powered from the Uninterruptible Power Supply bus.

Safety Evaluation

Restoration of this system to its original non-1E status has no effect on the Reactor Coolant System operation. There is no change to the CVCS function or configuration, and the design basis as defined in the UFSAR Section 9.3.4 is not affected. All probabilities, consequences and accident scenarios remain bounded by the existing analysis. Therefore, neither the probability of occurrence or the consequence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR is increased, nor the possibility for an accident or malfunction different than any previously evaluated in the UFSAR is created. The UFSAR, however, requires revision to indicate that the instruments are not powered from the 1E bus and delete instruments 3LI-0206A and 3LI-0208A.

The margin of safety as defined in the basis for any TS is not reduced by this change, since no TS Limiting Conditions for Operation or Surveillance Requirement is affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The change to the UFHA is necessitated due to the additional combustible loading from this change. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this modification.

Facility Change: 3-85-6372

Title

Removal and Capping off the Turbine Flange Warming System

Description

This change to remove the entire existing main steam high Pressure Turbine Flange Warming System, which is recommended by the Air In-leakage Task Force, will result in eliminating identified condenser vacuum leakage, water buildup in the piping and/or overpressurization of the piping. Since the Flange/Warming system is not required given the operating temperature and quality of steam to the turbines, removal of the Warming system is considered the best solution to eliminate condenser air inleakage. This change includes:

1. Removing existing piping between the main steam header and the high pressure turbine (HP) casing including MOVs HV-2177 and 2178, existing piping from the HP turbine to the condenser; installing pipe caps at the main steam header and HP turbine casing, pipe caps at the HP turbine casing and the condenser; and, plugging off connections to HP turbine flanges.
2. Removing non-operational handswitches and indicators from the main control panel; removing GEC pipe supports; and, abandoning electrical cables in place.

Safety Evaluation

FSAR Section 10.3.1, Main Steam System (MSS) design basis, addresses the HP Flange Warming System. Section 10.3.3, however, states that the Flange Warming System has no safety relationship or significance. The turbine manufacturer (GEC) determined that the Flange Warming System is not required for the HP turbines due to the operating quality and temperature of the steam. Removal of this system from the MSS will not affect the MSS components important to safety. This change will improve plant operation by eliminating air inleakage to the condenser. Therefore, neither the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will be increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR will be created. A revision to the FSAR is required, however, to delete the Flange Warming System.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. The HP Flange Warming System is not addressed in any TS. Thus, there is no impact on TS Limiting Conditions for Operation or Surveillance Requirement.

This change does not adversely impact the Fire protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 3-86-6014.04

Title

Respiratory/Service Air System (RSAS) Modification

Description

This change resulted from NRC Information Notice 79-08 and NUREG-0041 requiring a separate breathing air supply and distribution system. This change, in conjunction with Facility Change 2/3-84-6014.03, will separate the existing service air system (SAS) from the instrument air system(IAS). This change will add three new RSAS compressors and other components to provide compressed air for respiratory and service air requirements to meet NRC requirements.

The RSAS is common for both Units 2 and 3, therefore, no Facility Change is required for Unit 2.

Safety Evaluation

This change will ensure the availability of RSAS will be independent from the IAS in accordance with NRC requirements. The RSAS is not essential for safe shutdown of the plant and therefore, it is not required to meet Seismic Category I requirements or the single failure criterion except between containment isolation valves. Addition of the RSAS to the Compressed Air Systems (CAS) will not affect its function or the function of any other equipment, structures and systems. No design bases are changed by this modification. All probabilities, consequences, and accident scenarios remain bounded by the existing analysis. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will be increased by this change. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created. The UFSAR, however, requires revision to reflect this change.

The margin of safety as defined in the basis for any TS will not be reduced by this change. The new RSAS of the CAS is neither governed by the TS nor impacts any existing TS Limiting Conditions for Operation or Surveillance Requirements. Hence, no TS basis or associated margin of safety can be affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The UFHA,however, requires revision to reflect the addition of combustibles and slight increase in fire loading.

This change does not decrease the effectiveness of the security Plan or the Emergency Plan.

Facility Change: 3-86-6571, Revision 1

Title

Computer Room Heating, Ventilating and Air Conditioning (HVAC) Upgrade

Description

This change upgrades the HVAC system in the computer room to improve air distribution for the new Plant monitoring System (PMS) computer equipment. The existing computer room HVAC, which consist of air conditioning units from a centralized Control Room complex chilled water system, is considered inadequate during hot days and during operation in the control room isolation modes (CRIS and TGIS). In addition, new equipment for the PMS upgrade program adds more heat loads to the existing computer room HVAC. Accordingly, the computer room HVAC has to be modified. This change only affects recirculation unit E-669, which is one of the four chilled water air conditioning units for the computer room. The normal unit E-295, and the emergency units E-418 and E-419 are not affected by this change. This change includes increasing the chilled water piping to permit full cooling capacity, and providing two dedicated booster fans and baffles in E-669 supply plenum to effect proper air distribution.

Safety Evaluation

This change has no impact on the original design basis or function of the Control Room complex HVAC system during normal and emergency modes as defined in FSAR Sections 9.4.2.1.1 and 9.4.2.2.1. This change will enhance the ability of the computer room HVAC to maintain the required cooling. All accident probabilities, scenarios, and consequences remain bounded by the existing analysis. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will be increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR will be created. The FSAR, however, requires revision to add the booster fans provided in this change.

The margin of safety as defined in the basis for any TS is not reduced as a result of this change. TS 3/4.7.5 governs the Control Room Emergency Air Cleanup System (CREACUS) and this change has no impact on the Limiting Conditions for Operation or Surveillance Requirements for this TS or any existing TS. Hence, no TS basis or associated margin of safety can be affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 3-86-6571.01

Title

Plant Monitoring System (PMS) Replacement

Description

The PMS Upgrade Program provides a replacement for the existing PMS with a new system, upgrades the computer room HVAC system, and replaces the PMS computer and peripherals in the computer room and the control room. This change modifies the operator console, the Core Protection Calculator cabinet, and installs three Cathode Ray Tubes (CRTs), three Display Generators, a keyboard, two Data Acquisition Unit chassis, and a new additional power supply. Changes to the CPC cabinet involve internal wiring modification, without adding or removing any equipment.

Safety Evaluation

This change provides modification to the equipment installed in the operator console. All equipment are non-safety related and similar to the existing equipment and there is no interaction between safety related and non-safety related equipment as a result of this change. The isolation of safety related and non-safety related signals are not affected since the Opto-Coupled input/output (I/O) circuits on the digital output card, which transmits the signals to the new I/O system, are the same as the existing system. This change neither alters the functions performed by the CPC and the Control Element Assembly Calculators (CEAC) nor affects the original design basis of the CPC and CEAC. In addition, none of the equipment installed in this change is used to mitigate the consequences of an accident. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will be increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will be created.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. The equipment modified in this change is not addressed in any TS, therefore, there is no impact on TS Limiting Conditions for Operation or Surveillance Requirement.

This change does not adversely impact the Fire protection System/Program or violate the UFHA. The UFHA, however, requires revision to update the fire zone combustibles and fire loading. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 3-87-6554.06

Title

Installation of Power Lockouts for Shutdown Cooling (SDC) System Suction Valves, Pressurizer Auxiliary Spray Valve and Component Cooling Water (CCW) System Crosstie Valves

Description

The 10CFR50 Appendix R Compliance Statement Assessment requires power lockout of specified motor operated valves (MOVs) by opening their respective 480V feeder breakers to prevent spurious operation of the valves that may result from fire damage to valve motor operating circuits. This change provide lockouts to the valves which include: suction valves 3HV-9337 and 3HV-9377 for the SDC system; pressurizer auxiliary spray valve 3HV-9201; and, CCW system crosstie valves 3HV-6622A, 3HV-6224A, 3HV-6226A, 3HV-6227, 3HV-6228A, and 3HV-6229. This change also provides for a separate 120 VAC source for powering remote valve status indicating lights and/or MOV limit switch space heaters for these valves. This facilitates power lockout of MOV 480V circuit breakers without causing loss of all remote indication and power supply to MOV space heaters. This feature is provided for maintenance purposes and is not required for Appendix R compliance.

Safety Evaluation

The plant operating procedures require restoration of 480V power to the SDC system valves 3HV-9337 and 3HV-9377, which is performed by an operator in MCC-3BJ and at Channel C-3Y006 inverter panel directly above the control room, prior to initiating the use of SDC. This operator action is similar to those actions previously evaluated in Section 5.4.3 of the Safety Engineering Review (SER) document. The action required is of short duration and the location is remote from process piping and is considered a low radiation area. Hence, initiation of the SDC will not be adversely impacted during an emergency shutdown or during post design basis (DB) LOCA operations. This change only alters the control circuits of CCW valves which are Quality Class (QC) III and does not impact any QC II components. The operability of the Auxiliary Spray valve will not be adversely impacted as required during any emergency or post DB LOCA. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased.

**Facility Change: 3-87-6554.06 (Continued)**

**Safety Evaluation**

The consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased by this change. The availability of the SDC valves and auxiliary spray valve is ensured through the use of plant operating procedures for any normal or emergency operating conditions. The CCW valves affected are non-safety related and operability of the valves does not impair performance of any safety related CCW components. The SDC System Failure Mode and Effects Analysis, the CCW System Failure Mode and Effects Analysis, and the Chemical and Volume Control System Failure Mode and Effects Analysis are unaffected by this change.

The possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created by this change. The existing MOV valve control circuits are not being degraded, and all failure modes and effects analyses are unaffected.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. The change does not impact any TS Limiting Conditions for Operation or Surveillance requirements. Hence, no TS basis or margin of safety is affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The UFHA, however, requires revision to reflect the results of the Appendix R analysis and to document cable tray fill changes as a result of this change. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 3-87-6554.14

Title

Installation of Shutdown Cooling (SDC) System Temperature and Flow Indication

Description

This change adds local temperature and flow indication for the SDC system. A bimetal type temperature indicator (TI) and a local mechanical flow indicator (FI) will be provided to monitor SDC in the event control room temperature and flow indicators are lost due to a postulated fire. The TI (3TI-0352L) will be installed in process piping 038-14"-C-KEI and the FI (3FI-0306L) will be installed using the sensing lines for the existing flow transmitter 3FT-0306. The new indicator will be mounted adjacent to this flow transmitter.

Safety Evaluation

This change will provide a local means of monitoring SDC temperature and flow in the event that control room indicators are lost as a result of a fire. The thermowell and flow sensing tubing materials used are in accordance with the criteria for the existing piping and thus will not affect the pressure boundary of the process piping. The temperature and flow indicators are local instruments which cannot affect operation of any other instruments. Review of UFSAR Section 5.4.7 for SDC and Residual Heat Removal functions during post-shutdown periods and Section 6.3 for the SDC post-LOCA condition concluded that these added indicators do not in any way affect any function. All probabilities, consequences and accident scenarios remain bounded by the existing analysis. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will be increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will be created. The UFSAR, however, requires revision to include the temperature and flow indicators added by this change.

The margin of safety as defined in the basis of any TS will not be reduced by this change. This change does not impact any TS Limiting Conditions for Operation or Surveillance Requirements. As such no TS basis or margin of safety is affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The added indicators and mountings are not made of combustible materials and this change does not impact any existing conductors or loading of raceways or conduits. UFHA changes, if any, resulting from changes to compliance with Appendix R will be generated separately as appropriate. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 3-87-6604

Title

Remote Shutdown Panel 3L-42 Modifications

Description

NUREG-0737, "Clarification of the TMI Action Plan", required utilities to perform a Detailed Control Room Design Review (DCRDR). In compliance with the recommendations of NUREG-0700, "Guidelines for Control Room Design Reviews", SCE conducted a detailed control room design review (CRDR). The results of the CRDR noted design discrepancies in the Remote Shutdown Panel 3L-42 involving hierarchical organization, control display integration, system demarcation and labeling.

This change, which modifies 3L-42 to comply with the requirements of NUREG-0700, includes: relocating eight meters and eight switch/light assemblies; installing cover plates on the original location of three meters; installing new temperature indicators to provide for the Reactor Coolant System (RCS) Loop 1 temperature (Hot Leg) indication; provide new cutouts for relocated meters; implement system color demarcation and hierarchical labeling; and, provide internal wiring changes, pull new cable, conduits and supports from 3L-11 to 3L-42.

Safety Evaluation

This change modifies 3L-42 to improve operator efficiency in accordance with human engineering criteria provided by the DCRDR report required by NUREG-0700. The control arrangements in this change provide the operator a much better arrangement by system and function than the original design. This will help reduce or eliminate operator errors. This change does not adversely affect any safety function, including the Safe Shutdown System or the RCS, addressed in FSAR Sections 5.3, 7.4 and 7.5, hence no design bases is changed. Any probabilities, consequences or accident scenarios remain bounded by the existing analysis. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will not be increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR will be created.

The margin of safety as defined in the basis for any TS will not be reduced by this change. TS Table 3.3-9, govern the Remote Shutdown Monitoring Instrumentation. This change does not impact the TS Limiting Conditions for Operation or Surveillance Requirements for these instruments, hence, no TS design basis or margin of safety is affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The UFHA, however, requires a revision to reflect additional combustible material and additional fire loading. This change does not decreased the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 3-87-6605

Title

Control Room Modifications

Description

NUREG-0737, "Clarification of the TMI Action Plan", required utilities to perform a Detailed Control Room Design Review (DCRDR). In compliance with the recommendations of NUREG-0700, "Guidelines for Control Room Design Reviews", SCE conducted a detailed control room design review (CRDR). The review resulted in the generation of Human Engineering Discrepancies (HEDs), which identified the areas requiring improvement with respect to human factors layout of the main control panels. This change modifies the main control panels to improve operator performance and eliminate errors caused by deficiencies in human factors design. These changes include: modifying and relocating instruments and controls in the Main Control Room (MCR) Plant Protection System (PPS) panel 3CR-56, the Engineered Safety Features System (ESFS) panel 3CR-57, Post Accident recorder panel 3CR-59, the Heating and Ventilating panel 3CR-60, and Electrical Mimic Bus panel 2/3 CR-63. This modification also changes the Safety Injection Tank (SIT) pressure indicator scales and alarm setpoints to be compatible with the approved TS 3/4.5.1 change of the operating band of the SITs from between 600-625 psig to between 615-655 psia.

Safety Evaluation

This change implements DCRDR recommendations to improve human engineering factors of control room design. The intent of the DCRDR is to reduce the probability of an accident due to human error. This change does not represent any functional changes. All probabilities, consequences and accident scenarios remain bounded by the existing analysis. Therefore, the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created. The UFSAR, however, requires revision to reflect this change.

The margin of safety as defined in the basis for any TS will not be reduced by this change. The DCRDR recommendations in this change do not impact any TS Limiting Conditions for Operation or Surveillance Requirements. Although TS 3/4.5.1, which governs the SITs, requires a change, the TS basis or margin of safety will not be adversely affected.

This change does not adversely impact the Fire Protection system/Program or violate the UFHA. This change does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 3-88-6212.02

Title

Pressurizer Instrument Nozzle Modification

Description

The pressurizer lower instrument lines experienced clogging, which caused erroneous instrument readings, from crud buildup inside the pressurizer. Personnel had to enter the containment during power operation to blow out the instrument lines in order to obtain accurate instrument readings. This change will replace the two bottom pressurizer instrument nozzles with 18" standpipes to eliminate the clogging at the bottom of the pressurizer.

Safety Evaluation

This change will increase the reliability of the high pressure instrument sensing lines on the pressurizer. These instruments indicate pressurizer pressure and level, which is important to the safe operation of the plant. This change does not affect any safety function of the system addressed in FSAR Sections 5.4.10 or 7.7.1.2 nor does it affect the Design Basis for Accident Analysis, the Accident and Equipment Malfunction Analysis, or the HELB Analysis. Any probabilities, consequences or accident scenarios remain bounded by the existing analysis. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will not be increased.

The consequences of an accident or malfunction of any equipment important to safety previously evaluated in the FSAR will not be increased by this change. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the FSAR will not be created. Previous analysis of inadvertent opening of a pressurizer safety valve results in no core uncover. The lower sensing lines have a much smaller break area, which falls well within the boundaries of the previously analyzed incident. All the welds in this change will be verified in accordance with ASME Section XI, 1977 edition, summer 1979 addenda. Therefore, this change remains bounded by the existing accident analysis. The UFSAR, however, requires revision to reflect this change.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. The pressurizer control system is governed by TS 3/4.4.3 with a Limiting Condition for Operation (LCO) pertaining to pressurizer water volume. Design Basis Calculation M-0107-012-03B, Supplement A, verified that the setpoint level meets the criteria of 900 cubic feet or less water volume in the pressurizer ensuring there is no impact on any LCO. Hence, no TS bases or margin of safety will be affected.

This change does not adversely impact the Fire Protection system/Program or violate the UFHA. This change does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 3-88-6554.12

Title

Fire Isolation Switch Rewiring

Description

This change resulted from the 10CFR50 Appendix R Compliance Assessment (SCE Document No. 90035AP), which identified potential electrical failures involving existing fire isolation switches and their post fire shutdown capability. Failure of control cables to these components could result in loss of both the Main Control Room and local control capability in the Appendix R fire scenario. This change involves a modification to the fire isolation switch and control circuitry for the following safe shutdown equipments:

1. Pressurizer Backup Heaters E128
2. Low Pressure Safety Injection (LPSI) Pump P015
3. Auxiliary Feedwater Pump P141
4. Component Cooling water pump P024
5. Saltwater Cooling pump P112
6. Containment Emergency Fans E399 and E401
7. Auxiliary Building Emergency Chiller E336
8. Diesel Generator Building Emergency Cooling Fans A274 and A275
9. Control Building ESF Switchgear Room Emergency AC Unit E255
10. Safety Equipment Building LPSI Pump Room Emergency Unit E417

Safety Evaluation

This change does not adversely affect the required safety related function of the systems involved during a design basis LOCA or emergency shutdown conditions. The required normal and post accident operation of these systems and components are not affected. The fire isolation scheme, including cables and components such as switches and fuses, are designed and installed to the same quality requirements as other components in the existing control circuits. As such all probabilities, consequences, and accident scenarios remain bounded by the existing analysis. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will be increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will be created. The UFSAR Table 7.4-5, however, requires revision to reflect this change.

The margin of safety as defined in the basis for any TS will not be reduced by this change. No TS basis or associated margin of safety can be affected since no TS LCO or Surveillance Requirements are affected by this change.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The UFHA, however, requires revision to reflect the addition of combustibles and increased fire loading. This change does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 3-88-6554.16

Title

Addition of Control/Isolation Switches

Description

This change resulted from the 10CFR50 Appendix R Compliance Assessment (SCE Document No. 90035AP) which required the addition of "second points of control" for safe shutdown components used for alternative shutdown capability in the event of a fire. This change involves the following components:

1. Diesel generator 3G002 - Panel 3L160
2. 3G002 supply to Bus 3A04 - 4KV Breaker 3A0413
3. Feeder from Bus 3A04 to 3B04 - 4KV Breaker 3A0417
4. Supply to Bus 3B04 from Bus 3A04 - 480V Breaker 3B0401
5. Auxiliary Feedwater Valve 3HV4731 - MCC 3BE36
6. Auxiliary feedwater Valve 3HV4713 - MCC 3BE06
7. Fire Isolation switch Panel 3L412

This change also provides local fire isolation switches, handswitches, fuses, and position lights in the associated switchgear/MCC cubicles and electrical panels.

Safety Evaluation

The probability of occurrence of an accident or malfunction of equipment important to safety previously evaluated in the UFSAR will not be increased by this change. The function and operation of the component/equipment involved is not affected and the fire isolation scheme is designed and installed to the same quality requirements as other components in the existing control circuits. Procedures utilized in the installation of cables and components, rewiring are similar to those used for the existing design. The potential failure modes in the AC Power system or Auxiliary Feed water Valve control have been analyzed in the existing Failure Modes and Effects Analysis. No new hazards or interactions with existing systems are created. Therefore, neither the probability of occurrence or the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased, nor the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will be created. The UFSAR, however, requires revision to reflect the change in this modification.

The margin of safety as defined in the basis for any TS will not be reduced by this change. This change does not impact any TS LCO or Surveillance Requirements. As such, no TS basis or associated margin of safety is affected.

This change does not adversely impact the Fire Protection system/Program or violate the UFHA. The UFHA, however, requires a revision to reflect the addition of combustible material and the addition of Alternative Shutdown capability for the identified components. This change does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 3-88-6554.33

Title

Installation of Cooling Water Makeup Line for Train "A" Diesel Generator

Description

The present method of filling the expansion tanks in both Train "A" and Train "B" Diesel Generators is through temporary hoses, using water from the demineralized water system or other alternate sources. This method has been determined inadequate to meet the diesel generator (DG) restarting requirements of less than 30 minutes post-fire postulated by the 10CFR50 Appendix R scenario. Additionally, these water sources may not be available during an Appendix R fire concurrent with a loss of offsite power.

This change installs a cooling water makeup line to Train "A" Diesel Generator, which is credited for safe shutdown in the Appendix R Compliance Assessment for the alternative shutdown fire areas, to facilitate filling of the cooling water expansion tanks with water from the fire water header during an Appendix R fire.

Safety Evaluation

This change provides a means to facilitate filling of Train "A" DG cooling system by using firewater as the makeup source, in addition to the existing domestic water, demineralized water or service water sources. The safe shutdown function of the DG is not affected by this change. The use of firewater to fill the DG cooling system does not adversely impact the fire protection system (FPS) function of the firewater due to infrequent usage and low flow rate. The cooling water makeup line is designed to prevent overpressure damage to the DG cooling system and is constructed to meet Quality Class III FPS, Seismic II/I, and NFPA code for system integrity. All accident scenarios and consequences remain bounded by the existing analysis. Therefore, neither the probability of an occurrence or the consequences of an accident or malfunction previously evaluated in the UFSAR will be increased by this change. Additionally, this change will not create the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR. The UFSAR, however, requires revision to reflect this change.

The margin of safety as defined in the basis for any TS will not be reduced by this change. This change assures that the original design objectives and system functions are met and therefore, there is no impact on any TS Limiting Conditions for Operation or Surveillance Requirements. Hence, no TS basis or associated margin of safety is affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 3-88-6604.01

Title

Recalibration of the Reactor Coolant System (RCS) Hot Leg and Cold Leg Temperature Channels

Description

This change modifies and recalibrates RCS hot leg and cold leg temperature channels 3T-0111BX, 3T-0115 and 3T-0125 to a new wide range of 0-700 degrees F. The existing scales for the indicators: 3TI-0111BX on panel 3L-411; 3TI-0111X 3TI-0115 and 3TI-0125 on panel 3L-42, will be replaced with new 0-700 degrees F scales. The existing scales for recorder 3TR-0115/3TR-0125 on panel 3CR-50 will also be replaced with new 0-700 degrees F scale. These RCS hot leg and cold leg temperature indicators will be utilized for computing Tave and monitoring RCS cooldown rate while performing a shutdown from outside the control room. This change will eliminate a potential human engineering deficiency of having different temperature range indicators on panel 3L-42 close to each other which may confuse the operator.

Safety Evaluation

Neither the probability of occurrence or consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will be increased by this change. Additionally, the possibility of an accident or malfunction of a different type than any will not be created. This change merely recalibrates existing RCS hot leg and cold leg temperature transmitters to a new wide range; replaces existing scales on associated indicators and recorders and modifies computer software to match the revised temperature range. The purpose of this change is to make all RCS hot and cold leg temperature indications consistent to a 0-700 degree F range and thereby eliminating any operator confusion from having different range indicators adjacent to each other. This change does not adversely affect any safety function or alter any design bases. As such, all probabilities, consequences, and accident scenarios remain bounded by the existing analysis. The UFSAR, however, requires revision to reflect the new temperature range.

The margin of safety as defined in the basis for any TS will not be reduced by this change. The change does not impact any TS LCO or Surveillance Requirements. As such no TS basis or associated margin of safety is affected. The TS, however requires a change to revise the RCS cold leg temperature range from 0-600 degrees F to 0-700 degrees F, and the RCS hot leg temperature range from 190-625 degrees F to 0-700 degrees F.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

Facility Change: 3-88-6622

Title

Vital Area Security Door Modifications

Description

During refueling outages, personnel access to containment is facilitated by extending the containment security boundary. This required 24-hour posting of security personnel to ensure authorized personnel access control at the extended boundary.

This modification will provide card-reader controlled containment access for convenient entry or exit of authorized personnel, improved traffic control, and substantial cost savings in security manpower. This modification includes:

1. Addition of card readers with locks and alarms to doors at laundry facility (C3-406) and the Fuel Handling Building stairway (FH3-403).
2. Modifying FH3-402 for card reader access to the patio roof where tools used for containment work during outages are stored.
3. Replacing the existing single C3-406 door with two doors of similar fire rating. To maintain the existing access capability for large size equipment, a removable mullion will be provided between the two new doors.
4. Installation of access control panel, junction boxes, conduits and cables between the card reader system and the modified security panel

Safety Evaluation

The configuration of the temporary vital area boundary extension during refueling outages is an NRC approved security practice. The vital area boundary as shown in the Security Plan is restored after completion of the outage. This modification does not change any design bases and will not adversely impact any safety related component or system. Procedures utilized in the installation of cables/components, security doors/fire doors are similar to those for the existing design. All potential accident scenarios and consequences are bounded by the existing analysis. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR is not increased.

The structural adequacy of the new replacement fire/Security doors is consistent with the structural adequacy of the existing door. As such, the vital area barrier will not be impaired or degraded. Installation and operation of the equipment is similar to that of the existing plant systems. Therefore, the consequences of an accident or malfunction of any equipment previously evaluated in the UFSAR is not increased.

**Facility Change: 3-88-6622 (Continued)**

**Safety Evaluation**

The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created, since no new hazards or interactions with existing systems are created. Hence, all potential accident scenarios are bounded by the existing analysis.

The margin of safety as defined in the basis for any TS is not reduced. This modification, which augments the plant security system, will not impact any TS Limiting Conditions for Operation or Surveillance Requirements. As such, no TS basis or associated margin is affected.

This modification does not adversely impact the Fire Protection System/Program or violate the UFHA. The reconfiguration of a single 3-hour fire door to two new 3-hour fire doors requires a change to the UFHA. This modification does not decrease the effectiveness of the Security Plan or the Emergency Plan. However, the Security Plan requires a revision to reflect the change in this modification.

Facility Change: 3-88-6629

Title

Component Cooling Water Area and Storage Tank Area Sumps Drain Modifications

Description

The existing drains from the component cooling water (CCW) area sump and the storage tank (ST) area sump flow directly to the radwaste area sump. This results in overloading the liquid radwaste system and caused an increase in cost for radwaste processing. This overloading is generally caused by rainwater collected by the ST area sump and saltwater from the CCW heat exchanger and/or from saltwater system components being drained to the CCW sump during maintenance and servicing activities. Additionally, the presence of corrosion inhibitors in the CCW water makes the fluid undesirable for processing in the radwaste system.

This modification will relieve the overloading condition in the radwaste system and reduce the cost of processing radioactive waste. This is achieved by providing a means to direct the drains from the CCW and ST sumps to the Blowdown Process System (BPS) sump instead of the existing configuration which directs the flow to the radwaste system.

Safety Evaluation

The probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased by this modification. None of the initiating components to any of the accidents or malfunctions described in the UFSAR are affected by this modification. The sumps are not safety related. This modification will not change the functions of the CCW area sump, the ST area sump, the radwaste area sump, or the BPS neutralization sump. The new piping and valves would make it possible to realign the CCW area sump or the ST area sump effluent to be pumped directly to the BPS neutralization sump. The BPS sump discharge is monitored for radioactivity and the effluent is manually diverted to the Chemical Waste Tank. The CCW and ST area sump pumps will be maintained in manual operation to prevent overflow of the BPS or radwaste area sump. Evaluation of the CCW and the ST area sump pumps determined no motor overload or pump runout will occur due to the resulting higher flow rate for each pump. The BPS sump was also determined to have adequate capacity to accept the flow from the CCW and ST area sumps. Therefore, this change does not affect any safety function previously reviewed in the UFSAR. The design basis in the UFSAR requires a revision to show normal alignment of the CCW area sump and the ST area sump flow being directed to the BPS sump with an alternate alignment to the radwaste area sump. As such all probabilities, consequences, and accident scenarios remain bounded by the existing analysis.

**Facility Change: 3-88-6629 (Continued)**

**Safety Evaluation**

The consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased by this change. The function of any system affected by this change will not be adversely impacted. Also, the sumps are not used to mitigate any accidents described in the UFSAR.

The possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created by this change. No adverse impact to the function of any system will result from this change. In addition, locked close valves ensure that inadvertent flow from the containment, safety equipment and penetration area sumps will not occur through this new flow path. As such, no new types of accidents or malfunctions are created.

The margin of safety as defined in the basis for any TS will not be reduced by this modification. This change does not impact any TS Limiting Conditions for Operation or Surveillance Requirements. As such no TS basis or the associated margin of safety are affected.

This change does not adversely impact the Fire Protection System/Program or violate the UFHA. This change does not decrease the effectiveness of the Security Plan or the Emergency Plan.

Facility Change: 3-88-6683, Revision 1

Title

Snubber Reduction Program, Phase II.a

Description

This change implements the modifications resulting from the Unit 3 Phase II.a Snubber Reduction Program. This includes the removal of approximately 109 safety related mechanical snubbers and replacement of 72 safety related mechanical snubbers with rigid sway struts or guides; modifications of miscellaneous pipe supports (i.e., addition/deletion of pipe supports, addition of structural base, addition of stiffener plates to approximately 45 pipe supports). This change also addresses the modifications identified in Field Interim Design Change Notifications (FIDCNs) to: change part numbers of selected struts; delete the installation of two spring hangers and one pipe support identified in Revision 0 of this change; and, to remove the vent line from the letdown piping.

The extent of the modification is limited to piping, piping components, snubbers, struts and pipe supports of piping stress problems PSG-304, 231, 546, 682, 339, 495, 321, 117, 372, and 356. The majority of the snubbers contained in these stress problems have high failure rates and have presented inaccessibility concerns for in-service inspections. These snubbers are located in the Reactor Coolant (RC), Chemical and Volume Control (VC), Nuclear Sampling (SS), Safety Injection (SI), Fuel Storage Pool and Refueling (FS), Steam (ST), and Containment Spray (CS) piping systems. Welding to any piping pressure boundary and reconfiguration of any piping system is not permitted in this change.

Safety Evaluation

This modification will not change the design function of selected piping in the RC, VC, SS, SI, FS, ST, and CS systems containing the removed/replaced snubbers. The optimized configurations of the ten pipe stress problems have been verified by stress analysis in accordance with NRC criteria and the ASME code. Removal and/or replacement of these snubbers will have no adverse impact on the system function and pressure boundary of the piping system. All accident scenarios, consequences, and probabilities remained bounded by the existing UFSAR. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased. The UFSAR, however, requires revision to reflect the change in this modification.

Neither the function nor the integrity of the pressure boundary of any system affected by this modification will be adversely impacted. However, stresses higher than those indicated in the original analysis will result and have been evaluated against Code allowances and have been determined to be within limits. As such, the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased.

Facility Change: 3-88-6683, Revision 1 (Continued)

Safety Evaluation

Fatigue and functional analyses were performed to determine worst case failure of the remaining snubbers on the piping systems either in the "free" or "locked up" positions and to determine the remaining snubber "drag forces" on the piping nozzles. The analyses determined that the optimized snubber configuration will not create or introduce any possibility of an accident or malfunction different from any previously evaluated in the UFSAR.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. Although the Tables listing safety related snubbers have been deleted from the TS, snubber accountability will be maintained in the snubber surveillance procedure. Therefore, this change has no effect on any TS Limiting Conditions for Operation or Surveillance Requirement of any existing TS. As such no associated basis or margin of safety is affected.

This change will not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security plan or the Emergency plan will not be decreased by this change.

Facility Change: 3-88-6683.01

Title

Snubber Reduction Program, Phase II.b

Description

This change implements the modifications resulting from the Unit 3 Phase II.b Snubber Reduction Program. This includes removal of approximately 117 safety related mechanical snubbers and the replacement of 44 safety related mechanical snubbers with rigid sway struts or guides; modifications of miscellaneous pipe supports (i.e., addition/deletion of pipe supports, addition of structural base, addition of stiffener plates to approximately 11 pipe supports). Additionally, the blind flange at the end of the Pressurizer Spray Line test connection will be removed and replaced with a welded cap.

The extent of the modification is limited to piping, piping components, snubbers, struts and pipe supports contained in pipe stress problems PSG-44, 60, 166, 223, 224, 226, 227, 252, 479, 499, 541, and 636. The majority of the snubbers contained in these stress problems have high failure rates and have presented inaccessibility concerns for in-service inspections. These snubbers are located in the Reactor Coolant (RC)(outside of the primary loop), Chemical and Volume Control (VC), Nuclear Sampling (SS), Safety Injection (SI), Component Cooling Water (CC), and Boric Acid Makeup (BM) piping systems. Welding to any piping pressure boundary and reconfiguration of any piping system is not permitted in this change.

Safety Evaluation

This modification will not change the design function of selected piping in the RC, VC, SS, SI, CC, and BM systems containing the removed/replaced snubbers. The optimized configurations of the ten pipe stress problems have been verified by stress analysis in accordance with NRC criteria and the ASME code. Removal/replacement of these snubbers will have no adverse impact on the system function and pressure boundary of the piping system. All accident scenarios, consequences, and probabilities remain bounded by the existing UFSAR. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased. The UFSAR, however, requires revision to reflect the change in this modification.

Neither the function nor the integrity of the pressure boundary of any system affected by this modification will be adversely impacted. However, stresses higher than those indicated in the original analysis will result and have been evaluated against Code allowances and determined to be within limits. As such, the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased.

Facility Change: 3-88-6683.01 (Continued)

Safety Evaluation

Fatigue and functional analyses were performed to determine the worst case failure of the remaining snubbers on the piping system either in the "free" or "locked up" positions and to determine the remaining snubbers "drag forces" on the piping nozzles. The analyses determined that the optimized snubber configuration will not create or introduce any possibility of an accident or malfunction different from any previously evaluated in the UFSAR.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. Although the Tables listing safety related snubbers have been deleted from the TS, snubber accountability will be maintained in the snubber surveillance procedure. Therefore, this change has no effect on any TS Limiting Conditions for Operation or Surveillance Requirement of any existing TS. As such no associated basis or margin of safety is affected.

This change will not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security plan or the Emergency plan will not be decreased by this change.

Facility Change: 3-88-6683.02

Title

Snubber Reduction Program, Phase II.c

Description

This change implements the modifications resulting from the Unit 3 Phase II.c Snubber Reduction Program. This include removal of approximately 86 safety related mechanical snubbers and replacement of 33 safety related mechanical snubbers with rigid sway struts or guides; modifications of miscellaneous pipe supports (i.e., addition/deletion of pipe supports, addition of structural base, addition of stiffener plates to approximately 23 pipe supports).

The extent of the modification is limited to piping, piping components, snubbers, struts and pipe supports contained in pipe stress problems PSG-50, 60, 149, 491, 492, 548, and 597. The majority of the snubbers contained in these stress problems have high failure rates and have presented inaccessibility concerns for in-service inspections. These snubbers are located in the Safety Injection (SI), Fuel Storage Pool and Refueling (FS), Steam (ST), and Containment Spray (CS) piping systems. Welding to any piping pressure boundary and reconfiguration of any piping system is not permitted in this change.

Safety Evaluation

This modification will not change the design function of selected piping in the SI, FS, ST, and CS systems containing the removed/replaced snubbers. The optimized configurations of the ten pipe stress problems have been verified by stress analysis in accordance with NRC criteria and the ASME code. Removal/replacement of these snubbers will have no adverse impact on the system function and pressure boundary of the piping system. All accident scenarios, consequences, and probabilities remain bounded by the existing UFSAR. Therefore, the probability of occurrence of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased. The UFSAR, however, requires revision to reflect the change in this modification.

Neither the function nor the integrity of the pressure boundary of any system affected by this modification will be adversely impacted. However, stresses higher than those indicated in the original analysis will result and have been evaluated against Code allowances. These stresses are determined within limits. As such, the consequences of an accident or malfunction of any equipment important to safety previously evaluated in the UFSAR will not be increased.

Facility Change: 3-88-6683.02 (Continued)

Safety Evaluation

Fatigue and functional analyses were performed to determine worst case failure of the remaining snubbers on the piping system either in the "free" or "locked up" positions and to determine the remaining snubbers "drag forces" on the piping nozzles. The analyses determined that the optimized snubber configuration will not create or introduced any possibility of an accident or malfunction different from any previously evaluated in the UFSAR.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. Although the Tables listing safety related snubbers have been deleted from the TS, snubber accountability will be maintained in the snubber surveillance procedure. Therefore, this change has no effect on any TS Limiting Conditions for Operation or Surveillance Requirement of any existing TS. As such no associated basis or margin of safety is affected.

This change will not adversely impact the Fire Protection System/Program or violate the UFHA. The effectiveness of the Security plan or the Emergency plan will not be decreased by this change.

Facility Change: 3-88-6714

Title

Saltwater Connections for Post-Safe Shutdown Earthquake (SSE) Fire Protection

Description

This modification provides a seismically qualified source of water for manual fire fighting capability to areas containing safe shutdown equipment following a safe shutdown earthquake event (SSE) and to provide a system to transfer water for post-SSE fire fighting. The system will supply water from the saltwater pump discharge lines to seismically qualified standpipes near safe shutdown equipment. A single valved Fire Department hose connection will be provided in the 6" discharge vent lines for both saltwater pumps (Train A and Train B). The saltwater will be pumped by an existing seismically qualified mobile pump which will be located near the intake structure. Each saltwater connection will be equipped with two additional isolation valves per train and will utilize 3" fire hoses with standard 2-1/2" couplings for suction and discharge. When not in use the hoses will be stored in dedicated seismically qualified hose houses along the hose route.

Safety Evaluation

The modification is passive and will not affect normal operation of the Saltwater Cooling (SWC) system or the Fire Protection System (FPS) since an isolation valve isolates the SWC system from the FPS. Following an SSE, the SWC system, fire connections and standpipe system and the water transfer system will provide fire water to safe shutdown areas. Since the saltwater used for fire protection is less than 1% of the 17,000 gpm requirement of the SWC system, there will be no significant change in the function or operation of the SWC. The only change in operation in the FPS post-SSE is the saltwater source of water for the pumps. This modification will improve reliability by providing an unlimited source of fire protection water from properly supported pipe, valves and fittings. Furthermore, following the use of saltwater to put out a fire, an assessment will be performed to determine the impact of saltwater on equipment. Therefore, the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the UFSAR will not be increased. Additionally, the possibility of an accident or malfunction of a different type than any previously evaluated in the UFSAR will not be created. The UFSAR, however, requires a revision to incorporate the valved Fire Department connection.

The margin of safety as defined in the basis for any TS will not be reduced as a result of this change. The equipment involved is not covered by any TS, thus, no Limiting Conditions for Operation or Surveillance Requirements will be affected. Additionally, NRC approval of this SSE fire water capability is required. This change will not adversely impact the Fire Protection System/Program or violate the UFHA. The UFHA, however, requires a revision to incorporate this change. The effectiveness of the Security Plan or the Emergency Plan is not decreased by this change.

ENCLOSURE II

SAN ONOFRE NUCLEAR GENERATION STATION  
UNITS 1, 2, AND 3

1988 PROCEDURE CHANGES, TESTS, AND EXPERIMENTS

All procedure changes, tests and experiments, in 1988, applicable to San Onofre Nuclear Generating Station, Units 1, 2, and 3, received a safety evaluation pursuant to 10 CFR 50.59. The safety evaluation concluded that none of the procedure changes, tests, or experiments involved an unreviewed safety question. The safety evaluations were reviewed and approved by the appropriate personnel as required by the Technical Specifications. For each change, the respective review concluded that the probability of occurrence or the consequences of an accident or malfunction of a different type than any previously evaluated in the safety analysis report was not increased, the possibility for an accident or malfunction of a different type than any previously evaluated in the safety analysis reports was not increased, and the margin of safety as defined in the basis for any Technical Specification was not reduced.