

December 4, 2006

Mr. Richard M. Rosenblum
Senior Vice President and Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3 - RE:
DELETION OF THE REQUIREMENTS FOR FUEL HANDLING ISOLATION
SIGNALS AND FUEL HANDLING BUILDING POST-ACCIDENT CLEANUP
FILTER SYSTEM (TAC NOS. MC9232 AND MC9233)

Dear Mr. Rosenblum:

The Commission has issued the enclosed Amendment No. 208 to Facility Operating License No. NPF-10 and Amendment No. 200 to Facility Operating License No. NPF-15 for San Onofre Nuclear Generating Station, Units 2 and 3, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated December 6, 2005, as supplemented by letters dated March 14 and November 30, 2006.

The amendments delete TS Limiting Condition for Operation (LCO) 3.3.10 "Fuel Handling Isolation Signal (FHIS)," TS LCO 3.7.14, "Fuel Handling Building Post-Accident Cleanup Filter System," and the associated surveillance requirements. The amendment also deletes the fuel handling building post-accident cleanup filter systems from the ventilation filter testing program in administrative TS 5.5.2.12.

R. Rosenblum

- 2 -

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

N. Kalyanam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-361 and 50-362

Enclosures: 1. Amendment No. 208 to NPF-10
 2. Amendment No. 200 to NPF-15
 3. Safety Evaluation

cc w/encls: See next page

R. Rosenblum

- 2 -

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ADAMS Accession Nos.: Pkg ML062980429 (Letter ML062980434, TS Pages ML063390060)

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	NRR/DRA/AADB	NRR/DSS/SCVB
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OFFICE	NRR/DIRS/ITSB	OGC NLO subj to edits		NRR/LPL4/BC
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SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

THE CITY OF ANAHEIM, CALIFORNIA

DOCKET NO. 50-361

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 208
License No. NPF-10

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Southern California Edison Company, et al. (SCE or the licensee), dated December 6, 2005, as supplemented by letters dated March 14 and November 30, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-10.
3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility
Operating License and
the Technical Specifications

Date of Issuance: December 4, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 208

FACILITY OPERATING LICENSE NO. NPF-10

DOCKET NO. 50-361

Replace the following page of the Facility Operating License with the attached revised page. The revised page is identified by an amendment number and contains a marginal line indicating the area of change.

REMOVE

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Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

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SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

THE CITY OF ANAHEIM, CALIFORNIA

DOCKET NO. 50-362

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 200
License No. NPF-15

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Southern California Edison Company, et al. (SCE or the licensee), dated December 6, 2005, as supplemented by letters dated March 14 and November 30, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-15.
3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility
Operating License and
the Technical Specifications

Date of Issuance: December 4, 2006

ATTACHMENT TO LICENSE AMENDMENT NO.

FACILITY OPERATING LICENSE NO. NPF-15

DOCKET NO. 50-362

Replace the following page of the Facility Operating License with the attached revised page. The revised page is identified by an amendment number and contains a marginal line indicating the area of change.

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Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 208 TO FACILITY OPERATING LICENSE NO. NPF-10
AND AMENDMENT NO. 200 TO FACILITY OPERATING LICENSE NO. NPF-15
SOUTHERN CALIFORNIA EDISON COMPANY
SAN DIEGO GAS AND ELECTRIC COMPANY
THE CITY OF RIVERSIDE, CALIFORNIA
THE CITY OF ANAHEIM, CALIFORNIA
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3
DOCKET NOS. 50-361 AND 50-362

1.0 INTRODUCTION

By application dated December 6, 2005 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML053430168), as supplemented by letters dated March 14 (ADAMS Accession No. ML061100371), and November 30, 2006 (not yet in ADAMS) Southern California Edison Company (SCE, the licensee) requested changes to the Technical Specifications (TSs) for San Onofre Nuclear Generating Station, Units 2 and 3 (SONGS 2 and 3). The supplements dated March 14 and November 30, 2006, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination, as published in the *Federal Register* on January 3, 2006 (71 FR 155).

The amendments delete TS Limiting Condition for Operation (LCO) 3.3.10, "Fuel Handling Isolation Signal (FHIS)," TS LCO 3.7.14, "Fuel Handling Building Post-Accident Cleanup Filter System," and the associated surveillance requirements. The proposed amendment will also delete the fuel handling building (FHB) post-accident cleanup filter system (PACFS) from the "Ventilation Filter Testing Program" in TS 5.5.2.12.

It is expected that the approval of this amendment to remove FHIS and PACFS in the FHB, and the associated surveillance and filter testing from the TSs will reduce the duration and cost of planned outages.

2.0 BACKGROUND

The Fuel Handling Building Ventilation System (FHBVS) is designed to maintain a suitable environment for equipment operation and personnel access during normal operation. A subsystem, FHB PACFS, is designed to mitigate the consequences of a release of radioactivity

during normal operation and anticipated transients. On this basis, this subsystem is currently classified and designed as an Engineered Safety Features air cleanup system. The design basis for the FHBVS is unchanged by this license amendment request. The FHBVS distributes air throughout the building from areas of lower-potential radioactivity to areas of higher potential radioactivity. The design-basis accident (DBA) of interest for this system is the fuel handling accident (FHA) in the FHB. During fuel handling operations, a controlled space in the spent fuel pool area is maintained by closing the doors of the building. FHB airborne radiation monitors 2(3)RE7822G1 and 2(3)RE7823G2 will initiate isolation of the normal ventilation system and automatically initiate the filtration flow path upon detection of radioactivity released from a dropped fuel assembly.

As a part of this amendment request, the licensee performed an assessment of the radiological dose consequences of a postulated worst case FHA. The licensee showed that the FHIS and the PACFS were not required for meeting the U.S. Nuclear Regulatory Commission (NRC) acceptance criteria for doses at the exclusion area boundary (EAB), the low-population zone (LPZ), and the control room.

3.0 REGULATORY EVALUATION

The proposed change includes the deletions of TS LCOs and their associated surveillance requirements (SRs), the deletion of the FHB PACFS from the Ventilation Filter Testing Program, and the replacement of the assumed current control room unfiltered in-leakage with values based upon the tracer gas testing performed as stated in response to the NRC Generic Letter (GL) 2003-01, "Control Room Habitability." The NRC staff's evaluation of the proposed change is based upon the following regulatory requirements, guides, and standards:

1. Title 10 of the *Code of Federal Regulations* (10 CFR) Section 100.11, as supplemented by accident-specific criteria in Section 15 of the Standard Review Plan (SRP).
2. Part 50 of 10 CFR, Appendix A, General Design Criterion 19 (GDC 19), "Control room," as supplemented by Section 6.4 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," GDC 61, "Fuel storage and handling and radioactivity control."
3. Section 50.36 of 10 CFR, "Technical specifications."
4. NUREG-0800, "Standard Review Plan," Section 6.4, "Control Room Habitability Systems."
5. SRP Section 15.7.4, "Radiological Consequences of Fuel Handling Accidents."
6. Regulatory Guide (RG) 1.25 (Safety Guide 25) "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors."
7. RG 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors."

8. NUREG-800, "Standard Review Plan," Section 9.4.5, Engineered Safety Feature Ventilation System."
9. GL 2003-01, "Control Room Habitability."

The NRC staff also considered relevant information in the SONGS 2 and 3 Updated Final Safety Analysis Report (UFSAR) and TSs.

4.0 TECHNICAL EVALUATION

4.1 Filtration Systems

4.1.1 Unfiltered In-leakage and Control Room Habitability

SONGS 2 and 3 have a shared control room. The Control Room Emergency Air Cleanup System (CREACUS) is a dual train system that has the capability of operating in emergency mode or isolation mode. The CREACUS emergency mode is a pressurized mode that is initiated during radiological events. The CREACUS isolation mode is a neutral pressure mode that is initiated during hazardous chemical events.

On June 12, 2003, the NRC staff issued GL 2003-01, "Control Room Habitability." This GL identifies NRC staff concerns regarding the reliability of current surveillance testing to identify and quantify control room in-leakage, and requests licensees to confirm the most limiting unfiltered in-leakage into their control room envelope. The licensee performed tracer gas testing in accordance with American Society for Testing and Materials (ASTM) E-741, "Standard Test Method for Determining Air Changes in a Single Zone by Means of a Tracer Gas Dilution," in May 2004, to measure the unfiltered air in-leakage rates to the SONGS 2 and 3 common control room envelope (CRE). The CRE inleakage was measured with CREACUS operating in two emergency (pressurization) modes (A Train, B Train) and two isolation modes (A Train, B Train). In order to ensure that the most limiting case was tested, a fifth case was also measured; the fifth test was performed on Train B of CREACUS in the isolation mode with a normal supply fan turned off and normal exhaust fans running to create a differential pressure across the CRE (Isolation Mode (High ΔP)).

Based on information provided by SCE in a letter dated September 17, 2004 (ADAMS Accession No. ML042650353), the tracer testing showed that the SONGS 2 and 3 common CRE has 67 standard cubic feet per minute (scfm) for train A and 65 scfm for Train B of unfiltered in-leakage. Regulatory Position C.1.4 of RG 1.197 provides guidance indicating that it is optional to include the uncertainty for facilities that demonstrate a CRE in-leakage rate less than 100 scfm. Since the tracer gas tested unfiltered in-leakage rate value is less than 100 scfm (67 scfm for train A or 65 scfm for Train B), the licensee is in compliance with the guidance of RG 1.197. Additionally, in its dose calculations for the FHA, SCE assumed a bounding CRE unfiltered in-leakage rate of 1000 scfm (representing 990 cubic feet per minute (cfm) of unfiltered inleakage via the CRE boundary, plus 10 cfm of unfiltered inleakage due to control room ingress and egress). The in-leakage rate is greater than the tracer gas tested value based on dual train maximum unfiltered in-leakage rates of 132 scfm without uncertainty or 259 scfm considering uncertainty (consistent with RG 1.197) used to evaluate the accident

conditions. The assessment of radiological consequences resulting from the FHA by not crediting PACFS filtration function and using 1000 scfm unfiltered air in-leakage inside CRE concludes that PACFS is not required for controlling the FHA doses to within established regulatory limits for EAB, LPZ, and control room.

4.1.2 Technical Specification Changes

The proposed change will delete TS 3.7.14 and will remove the FHB PACFS from the Ventilation Filter Testing Program in TS 5.5.2.12. However, SCE states that, at present, SONGS 2 and 3 do not plan to implement modifications to physically remove the filters or charcoal adsorbers from the system design. The deletion of TS 3.7.14 will affect TS Table of Contents pages iii, iv, vii, and viii.

In order to implement a Licensee Controlled Specification (LCS) change to transfer the operability and functional requirements of the isolation and cleanup systems to the LCS, SCE stated:

- The required surveillance will include the current requirements to test the system operation, including automatic isolation on high radiation. In this transfer, the FHB PACFS Limiting Condition for Operation requirement for two operable systems will be reduced to one system operable during movement of irradiated fuel in the fuel building.
- Completion Times for both FHIS and PACFS inoperabilities will be revised from "Immediately" to "1 hour" to allow for orderly completion of the Required Action after discovery of inoperability.
- The FHB PACFS will be removed from the Ventilation Filter Testing Program of TS 5.5.2.12, and testing of the charcoal adsorbers and the high efficiency particulate air filters will no longer be required.
- The LCS for FHIS will continue to require the surveillances currently contained in SRs 3.3.10.1, 3.3.10.2, 3.3.10.3, 3.3.10.4, and 3.3.10.5. The LCS for PACFS will continue to require the surveillances currently contained in SRs 3.7.14.1 and 3.7.14.3. This will ensure a conservative defense-in-depth position by testing the initiation function of the FHIS system.
- The FHB airborne radiation monitors [...] provide for the automatic isolation of the FHB Ventilation System. The automatic isolation of the FHB Ventilation System is not a required safety function. However, the operability function will be maintained by moving the operability requirements for these monitors into the LCS.

The licensee stated that, in support of the proposed change to the SONGS 2 and 3 TSs, 10 CFR 50.36(c)(2)(ii) criteria are reviewed for applicability, as follows:

- (A) Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

SONGS 2 and 3 FHIS instrumentation is used to detect airborne radioactivity resulting from an FHA-FHB, and not to detect a degradation of the reactor coolant pressure boundary.

- (B) Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a DBA or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The SONGS 2 and 3 FHIS and FHB PACFS represent systems and not process variables, design features, or operating restrictions.

- (C) Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The SONGS 2 and 3 FHIS and PACFS are designed to mitigate the consequences of fuel rod failures caused by a FHA inside the FHB (FHA-FHB). The fuel rods are fission product barriers. However, it has been shown that the consequences of a postulated FHA-FHB are acceptable without credit for operation of the FHIS and PACFS. Therefore, the FHIS and PACFS are not part of the primary success path for accident response.

- (D) Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The licensee has shown that the FHIS and PACFS are not significant to public health and safety because these systems are not needed to mitigate the consequences of an FHA-FHB. Testing of the PACFS under the Ventilation Filter Testing Program is not required.

Therefore, SCE concluded that SONGS 2 and 3 FHB PACFS do not meet any of the four regulatory criteria for inclusion in the TSs and may be deleted from the TSs.

The NRC staff reviewed the licensee's proposed changes and their rationale to delete TS 3.7.14, "Fuel Handling Building Post-Accident Cleanup Filter System," and revise TS 5.5.2.12, "Ventilation Filter Testing Program," for SONGS 2 and 3, as described above, and finds the changes acceptable. Additionally, SCE states that at this time, it does not plan to implement modifications to physically remove the filters or charcoal adsorbers from the system design and if the removal of the auxiliary building air filtration system is considered in the future, the 10 CFR 50.59 process will control. The NRC staff finds this acceptable.

4.1.3 Summary

Acceptability of the current design of FHB PACFS is unchanged and meets the intent of specific GDC and RGs as stated in the SRP Sections 6.4 and 9.4.5, applicable to SONGS 2 and 3. FHB PACFS filtration function is not credited in the dose analysis to mitigate the consequences of FHA-FHB. FHB PACFS continues to conform with GDC 61, "Fuel Storage and Handling and Radioactivity Control," 10 CFR Part 50, Appendix A, with respect to the capability of the system to appropriately control the containment, confinement, and filtration of gaseous radioactive

effluents. Additionally, the NRC staff concurs with the changes made in the Table of Contents for SONGS 2 and 3 as a result of the proposed deletion of TS because these changes are administrative.

Based on its review, the NRC staff finds the proposed technical specification change for the FHB PACFS acceptable.

4.2 Radiological Consequences

4.2.1 Introduction

This section of the safety evaluation addresses the impact of the proposed changes on the previously analyzed DBA radiological consequences and the acceptability of the revised analysis results.

4.2.2 FHA Analysis

The licensee submitted calculations of thyroid and whole body dose values at the EAB, the LPZ, and in the control room following the design-basis FHA. The NRC staff performed confirmatory evaluations of the licensee's analysis of the radiological consequences of design-basis FHA. The licensee's analysis does not take any credit for containment isolation, holdup within the containment, or filtration of the postulated radiological release from the FHA.

The FHA analyzed by the licensee is based primarily on parameters presented in the UFSAR. Only two parameter values are different from these currently listed in the SONGS 2 and 3 UFSAR (See Table 1). These are the radial peaking factor and the control room unfiltered inleakage rate. A slightly higher peaking factor of 1.75, based on reload analyses, is used rather than 1.71. The total control room unfiltered inleakage rate is assumed to be 1,000 cfm rather than 259 cfm established by the control room envelope tracer gas test results. The changes to the parameters add conservatism to the analysis.

The licensee's dose analysis assumes the FHA occurs 72 hours after a plant shutdown. The FHA instantaneously releases all iodine and noble gases in the fuel rod gap into the spent fuel pool water. The composition of the release is assumed to be 30 percent krypton, 12 percent iodine, and 10 percent other noble gases. The iodine and noble gases released from the damaged fuel pins bubble up through the 23 feet of spent fuel pool water covering the damaged fuel, and collect in the FHB. The pool iodine decontamination factor is 100. The remaining release is exhausted into the environment within 2 hours of the FHA. The analysis gives no credit to the FHB PACFS.

Automatic isolation of the FHB ventilation system was not assumed to occur in the licensee's analysis. This assumption is in accordance with the guidance in RG 1.25, as modified by NUREG/CR-5009, "Information on High-Burnup Fuel," and SRP 15.7.4.

The results of the licensee's dose analysis show that the radiological consequences remained within applicable regulatory requirements, even without any filtering of the release from the FHB to the environment. The offsite dose consequences for EAB and LPZ are both within the SRP Section 15.7.4 dose acceptance criteria of 75 roentgen equivalent man (rem) thyroid and 6 rem

whole body. The control room doses are within SRP Section 6.4 dose acceptance criteria of 5 rem whole body and 30 rem thyroid.

The NRC staff compared the doses estimated by the licensee to the results estimated by the staff in its confirmatory calculations. The calculations indicate that the PACFS is not required for controlling the FHA doses to within established regulatory limits for the EAB, LPZ, and control room. The NRC staff finds, with reasonable assurance, that the licensee's dose estimates based on the amended TS will comply with the regulatory requirements in 10 CFR Part 100 and GDC 19.

4.2.3 Summary

SONGS 2 and 3 FHB PACFSs were not credited (without taking credit FHB PACFS high-efficiency particulate air and charcoal filters) by the NRC staff for evaluating the potential radiological consequences of FHA-FHB at the EAB, LPZ, and control room. The control room envelope was evaluated by the NRC staff considering the bounding unfiltered inleakage rate of 1,000 cfm. The NRC staff concluded that FHB PACFS is not required to be credited for controlling the FHA doses to within established regulatory limits for EAB, LPZ, and the control room. Therefore, the NRC staff concludes that the CRE continues to conform with the requirements of 10 CFR Part 50, Appendix A, GDC 19.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendment. The State official had comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or the use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on January 3, 2006 (71 FR 155). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the

Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: D. Chung
J. Raval

Date: December 4, 2006

TABLE 1, INPUT PARAMETERS USED FOR CALCULATING FHA-FHB
RADIOLOGICAL CONSEQUENCES

Source Term and FHB Parameters	Proposed Value	UFSAR Value
Core Thermal Power, megawatts thermal (MWt)	3,458	3,458
Time Between Plant Shutdown and Accident, hours	72	72
Radial Peaking Factor	1.75	1.71
Number of Damaged Fuel Rods	60	60
Fission Product Gases in Fuel Rod Gap Region, percent		
Krypton-85	30	30
Other Noble Gases	10	10
Iodine	12	12
Fraction of Gap Activity Released to the Spent Fuel Pool Water, percent	100	100
Minimum Water Depth Above Damaged Fuel Rods, feet	23	23
Spent Fuel Pool Water Decontamination Factors:		
Noble Gases	1	1
Iodine	100	100
Airborne Iodine Forms, percent		
Elemental	75	75
Organic	25	25
Fuel Handling Building Model		
Fuel Handling [Building] Isolation Signal	Not modeled	Not modeled
FHB PACFS Iodine Removal	Not modeled	Not modeled
Activity Release Duration from FHB, hours	2	2
FHB Net Free Volume, cubic feet	365,305	365,305
FHB Air Exhaust Flow Rate, cfm	25,581	25,581
Exclusion Area Boundary (EAB) Parameters (0 to 2 hours)	Proposed Value	UFSAR Value
Atmospheric Dispersion Factor to EAB, sec/m ³	2.72e-4	2.72e-4
Thyroid Inhalation Dose Conversion Factors	ICRP-30	ICRP-30
EAB Breathing Rate, m ³ /sec	3.47e-4	3.47e-4
EAB Occupancy Factor	1.0	1.0

TABLE 1, INPUT PARAMETERS USED FOR CALCULATING FHA-FHB
RADIOLOGICAL CONSEQUENCES (continued)

Low Population Zone (LPZ) Parameters (0 to 8 hours)		
Atmospheric Dispersion Factors to LPZ, sec/m ³	7.72e-6	7.72e-6
Thyroid Inhalation Dose Conversion Factors	ICRP-30	ICRP-30
LPZ Breathing Rate, m ³ /sec	ICRP-30	ICRP-30
LPZ Breathing Rate, m ³ /sec	3.47e-4	3.47e-4
LPZ Occupancy Factor	1.0	1.0
Control Room (CR) Parameters (0 to 8 hours)		
Atmospheric Dispersion Factors to Control Room (CR), sec/m ³	3.1E-3	3.1E-3
Thyroid Inhalation Dose Conversion Factors	ICRP-30	ICRP-30
CR Breathing Rate, m ³ /sec	3.47e-4	3.47e-4
CR Occupancy Factor	1.0	1.0
CR Volume, cubic feet	266,920	266,920
CR Normal HVAC System Operation (0 to 3 minutes):		
Normal Operation Unfiltered Inflow Rate, cfm	5,820	5,820
Total Unfiltered Inleakage Rate, cfm	1,000	10
CR Isolation (switchover to CREACUS), minutes	3	3
CREACUS Operation (3 minutes to 8 hours):		
Filtered Inflow Rate, cfm	4,400	4,400
Filtered Recirculation Rate, cfm	59,869	59,869
Total Unfiltered Inleakage Rate, cfm	1,000	10
Inflow and Recirculation Filter Efficiencies, percent		
Elemental Iodine	95	95
Organic Iodide	95	95
Particulates	99	99

TABLE 2, CALCULATED RADIOLOGICAL CONSEQUENCES

Exclusion Area Boundary (0 to 2 hour dose)	Dose	SRP 15.7.4 Dose Acceptance Criteria
Thyroid	18.8 rem	75 rem
Whole Body [WB]	<0.1 rem	6 rem
Low Population Zone (event duration dose)	Dose	SRP 15.7.4 Dose Acceptance Criteria
Thyroid	0.5 rem	75 rem
Whole Body	<0.1 rem	6 rem
Control Room Operator (event duration dose)	Dose	GDC-19 (and SRP 6.4) Dose Acceptance Criteria
Thyroid	9.3 rem	30 rem (equivalent to 5 rem WB)
Whole Body	<0.1 rem	5 rem
Beta Skin	1.2 rem	30 rem (equivalent to 5 rem WB)

San Onofre Nuclear Generating Station
Units 2 and 3

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San Onofre Nuclear Generating Station
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