SOUTHERN CALIFORNIA
EDISON
An *EDISON INTERNATIONAL*℠ Company

Dwight E. Nunn
Vice President

February 24, 2000

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: **Docket Nos. 50-361 and 50-362**
Amendment Application Nos. 195 and 180, Supplement 1
Proposed Change to the Operating License Expiration Date
San Onofre Nuclear Generating Station
Units 2 and 3

References: See Enclosure 1

Gentlemen:

San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 are currently licensed for operation for 40 years commencing with issuance of their construction permits. These applications for amendments to the SONGS 2 and 3 Operating Licenses propose to revise the expiration date of these licenses to forty (40) years from the date of issuance of the operating licenses. A license term of 40 years from the date of issuance of the operating license is permitted under 10CFR50.51.

Amendment Application Numbers 195 and 180, Supplement 1 to Facility Operating Licenses NPF-10 and NPF-15, respectively, for SONGS Units 2 and 3 are provided as Enclosure 2. These amendment applications consist of Proposed Change Number 507 (PCN 507) Supplement 1. PCN 507 Supplement 1 provides information supporting the change, a No Significant Hazards Consideration, and an Environmental Consideration. PCN 507 Supplement 1 also provides the basis for a license recapture amendment request that would result in a license term of 40 years from the date of issuance of full power authorization for both SONGS 2 and 3 should the Commission elect to elaborate on its Staff Requirements in response to SECY-98-296 and allow the recapture of the time spent in low power testing. In the interest of expediting the approval of this application for the construction period recapture, however, Southern California Edison (SCE) is only applying for the period up to, but not including, low power testing. Thus, these amendment applications request that the SONGS 2 Operating License expiration date be changed from October 18, 2013 to February 16, 2022, and the SONGS 3 Operating License expiration date be changed from October 18, 2013 to November 15, 2022.

PCN 507 Supplement 1 was modeled after the Indian Point 3 submittal (Reference 1). PCN 507 also includes subsequent information Indian Point 3 provided in response to specific NRC questions (References 2, 3, and 4). The reference for the NRC approval of the Indian Point 3 submittal (Reference 5) is also provided.

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In a telephone call on February 15, 2000, the NRC requested additional information regarding 1) the requirements of 10 CFR 50, Appendix G, Section IV.A.1.a for Charpy upper-shelf energy, 2) the requirements of 10 CFR 50, Appendix H, surveillance capsule withdrawal schedule, and 3) the Pressurized Thermal Shock (PTS) value for Unit 3.

In confirmation of the information provided during the telephone call, the additional information regarding 10 CFR 50, Appendix G, Section IV.A.1.a for Charpy upper-shelf energy is provided in Section 5.3 of the Updated Final Safety Analysis Report (UFSAR).

In response to the requirements of 10 CFR 50, Appendix H, SCE is committed to maintaining compliance with the regulations. To provide for continued compliance with 10 CFR 50, Appendix H, SCE will submit a surveillance capsule withdrawal schedule to the NRC by May 31, 2000, and request approval of that schedule in accordance with 10 CFR 50, Appendix H, Section III.B.3. This submittal is required independent of NRC approval of construction period recapture.

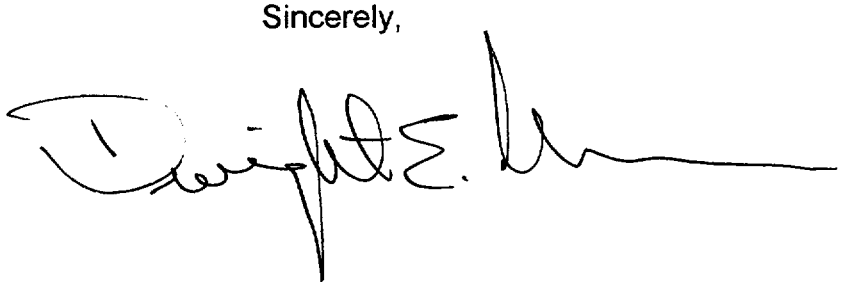
To provide the clarification concerning the PTS value for Unit 3, Supplement 1 provides a revised PTS value for Unit 3 based on the unirradiated nil-ductility temperature provided in Section 5.3 of the SONGS 2 and 3 Updated Final Safety Analysis Report. This revised PTS value is less than the value provided by the original submittal of PCN 507.

The information provided by this letter and the attached supplement do not change the scope or the intent of the request as originally stated in Amendment Application Nos. 195 and 180, submitted on December 13, 1999. Additionally, the information provided by this letter and the attached supplement does not change either the No Significant Hazards Consideration Evaluation or the Environmental Consideration Evaluation contained in these amendment applications.

In accordance with 10 CFR 50.91, copies of these applications are being submitted to the designated California State Official.

If you have any questions or need addition information regarding this matter, please feel free to contact me.

Sincerely,



Enclosure(s)

cc: E. W. Merschoff, Regional Administrator, NRC Region IV
J. A. Sloan, NRC Senior Resident Inspector, San Onofre Units 1, 2 and 3
L. Raghavan, NRC Project Manager, San Onofre Units 2 and 3
S. Y. Hsu, California Department of Health Services

ENCLOSURE 1

REFERENCES

Amendment Application Number 195 and 180

References:

1) Letter from J. C. Brons (New York Power Authority) to the Document Control Desk (NRC) dated June 11, 1990; Subject: Indian Point 3 Nuclear Power Plant Docket No. 50-286, Proposed Change to the Operating License Expiration Date

2) Letter from R. E. Beedle (New York Power Authority) to the Document Control Desk (NRC) dated June 18, 1991; Subject: Indian Point 3 Nuclear Power Plant Docket No. 50-286, Proposed Change to the Operating License Expiration Date

3) Letter from R. E. Beedle (New York Power Authority) to the Document Control Desk (NRC) dated February 11, 1992; Subject: Indian Point 3 Nuclear Power Plant Docket No. 50-286, Proposed Change to the Operating License Expiration Date (TAC No. M76970)

4) Letter from R. E. Beedle (New York Power Authority) to the Document Control Desk (NRC) dated May 13, 1992; Subject: Indian Point 3 Nuclear Power Plant Docket No. 50-286, Proposed Change to the Operating License Expiration Date (TAC No. M76970)

5) Letter from N. F. Conicella (NRC) to R. E. Beedle (New York Power Authority) dated July 15, 1992; Subject: Issuance of Amendment for Indian Point Nuclear Generating Unit No. 3 (TAC No. M76970)

ENCLOSURE 2

AMENDMENT APPLICATION NUMBERS

195 AND 180, SUPPLEMENT 1

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. for a Class 103 License to Acquire, Possess, and Use a Utilization Facility as Part of Unit No. 2 of the San Onofre Nuclear Generating Station	)	Docket No. 50-361 Amendment Application No. 195, Supplement 1

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 195, Supplement 1. This amendment application consists of Proposed Change Number NPF-10-507, Supplement 1 to Facility Operating License No. NPF-10. Proposed Change Number NPF-10-507, Supplement 1 is a request to change the expiration date of the San Onofre Nuclear Generating Station (SONGS) Unit 2 Operating License as stated in Condition 2. J. of the Amended Facility Operating License from October 18, 2013, to February 16, 2022. This new expiration date corresponds to forty (40) years from the date of issuance of the Operating License as permitted under 10CFR50.51. SONGS 2 was designed and constructed for an operating lifetime of 40 years. Under the current expiration date of October 18, 2013, SONGS 2 would have an operating lifetime of slightly less than 32 years.

Subscribed on this 24th day of February, 2000.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: Dwight E. Nunn

Dwight E. Nunn
Vice President

State of California

County of San Diego

On 2/24/00 before me, Mariane Sanchez,

personally appeared Dwight E. Nunn, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

MARIANE SANCHEZ
Commission #1196482
Notary Public - California
San Diego County
My Comm. Expires Oct 14, 2002

WITNESS my hand and official seal.

Signature Mariane Sanchez

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA	)	
EDISON COMPANY, ET AL. for a Class 103	)	Docket No. 50-362
License to Acquire, Possess, and Use	)	
a Utilization Facility as Part of	)	Amendment Application
Unit No. 3 of the San Onofre Nuclear	)	No. 180, Supplement 1
Generating Station	)	

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 180, Supplement 1. This amendment application consists of Proposed Change Number NPF-15-507, Supplement 1 to Facility Operating License No. NPF-15. Proposed Change Number NPF-15-507, Supplement 1 is a request to change the expiration date of the San Onofre Nuclear Generating Station (SONGS) Unit 3 Operating License as stated in Condition 2. J. of the Amended Facility Operating License from October 18, 2013, to November 15, 2022. This new expiration date corresponds to forty (40) years from the date of issuance of the Operating License as permitted under 10CFR50.51. SONGS 3 was designed and constructed for an operating lifetime of 40 years. Under the current expiration date of October 18, 2013, SONGS 3 would have an operating lifetime of slightly more than 31 years.

Subscribed on this 24th day of February, 2000.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: _____
Dwight E. Nunn
Vice President

State of California

County of San Diego

On 2/24/00 before me, Mariane Sanchez,

personally appeared DWIGHT E. NUNN, personally known

to me to be the person whose name is subscribed to the within instrument

and acknowledged to me that he executed the same in his authorized capacity,

and that by his signature on the instrument the person, or the entity upon

behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature _____

MARIANE SANCHEZ
Commission #1196482
Notary Public - California
San Diego County
My Comm. Expires Oct 14, 2002

DESCRIPTION AND SAFETY ANALYSIS
OF PROPOSED CHANGE NPF-10/15-507, Supplement 1

Proposed Change Number 507 (PCN-507) Supplement 1 is a request to revise the expiration dates of the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 Operating Licenses as stated in License Condition 2. J. of the Amended Facility Operating Licenses from October 18, 2013 to February 16, 2022 for Unit 2 and to November 15, 2022 for Unit 3. This change does not effect the 32 Effective Full Power Years (EFPY) design life as described in the Updated Final Safety Analysis Report.

Section I - Description of Changes

This proposed change is a request to revise the expiration date of the SONGS 2 and 3 Operating Licenses to account for forty (40) years of operation from the date of issuance of their respective Operating Licenses (February 16, 1982 for Unit 2, and November 15, 1982 for Unit 3). Specifically, Conditions 2. J. of the Amended Facility Operating Licenses are to be changed for each unit as follows:

Unit 2:

EXISTING

"... and shall expire at midnight on October 18, 2013."

PROPOSED:

"... and shall expire at midnight on February 16, 2022."

Unit 3:

EXISTING:

"... and shall expire at midnight on October 18, 2013."

PROPOSED:

"... and shall expire at midnight on November 15, 2022."

Section II - Evaluation of Changes

Prior to 1982, the Commission typically granted operating licenses to nuclear power reactors with the date of expiration linked to the issuance date of the construction permits. This practice was modified in response to a request by Commonwealth Edison Company for the Commission to issue an operating license (OL) for La Salle Units 1 and 2, for a full term of 40 years beginning with the date of issuance of the OL. This request was approved, and La Salle Unit 1 received an OL for 40 years from the date of OL issuance in 1982. In an August 16, 1982 memorandum to the Commission, Mr. William I. Dircks, Executive Director for Operations, elaborated on the new OL position and directed the staff to issue an OL for the term requested by the applicant, but in no case to exceed 40 years from date of issuance of the OL. Several plants, including Palo Verde Units 1, 2, and 3, St. Lucie 2, and Waterford were granted 40 year terms from the issuance of the OL.

The Commission's practice of granting 40 year OLs has also, upon request by the licensee, been extended to plants licensed before 1982. Baltimore Gas and Electric Company requested a license amendment to change the OL expiration dates of Calvert Cliffs Units 1 and 2 to account for 40 years of operation from the date of issuance of the OL. The Commission granted this request and issued licensing amendments on May 1, 1985. The Commission, in amending the Calvert Cliffs licenses, noted that the issuance of OLs for 40 years from the date of the construction permit issuance rather than 40 years from the date of the OL issuance was arbitrary, and had no safety basis. Similarly, the Commission has approved revision of the OL expiration date for a number of plants licensed prior to 1982, including the St. Lucie 1, and Arkansas Nuclear One - Unit 2.

SONGS 2 and 3 are currently licensed for plant operation for 40 years from the date of issuance of their construction permit. Accounting for the time that was required for construction, this represents an effective OL term of slightly less than 32 years for Unit 2 and slightly more than 31 years for Unit 3.

SONGS 2 and 3 were designed, licensed, and constructed for 40 years of operation as discussed in various places in Updated Final Safety Analysis Report (UFSAR). This 40 year design life presumed operation at a rated thermal power level of 3390 MW with a cumulative lifetime capacity factor of 80%, or 32 effective full power years (EFPY). To date, SONGS 2 and 3 has attained a cumulative gross capacity factor of approximately 76% for Unit 2 and 78% for Unit 3. While SCE could foresee SONGS 2 and/or 3 exceeding a cumulative gross capacity factor of 80% sometime in the future, nevertheless, Units 2 and 3 will operate within the design basis as discussed below.

The reactor vessel was initially designed and licensed based on a 40 year service life with an 80% capacity factor. A comprehensive vessel material surveillance program is maintained in accordance with 10CFR50, Appendix H. The first surveillance capsule for Unit 2 was pulled at the end of the third fuel cycle, which corresponds to 2.85 EFPY. The Unit 2 data represented the original core for both units, and the best estimate value of peak fluence at the vessel inner surface was 4.34×10^{18} n/cm^2 (E>1MeV); the capsule fluence was about 20 percent higher at 5.07×10^{18} n/cm^2. At the start of the fourth cycle for each unit the core was reconfigured in a low leakage loading pattern which reduced the vessel and capsule fluxes. The first capsule taken out of Unit 3 was after the fourth fuel cycle at 4.33 EFPY and represented the combined results of the standard and low leakage core designs. SONGS Reference Temperature Pressurized Thermal Shock (RTpts) values, in accordance with the Pressurized Thermal Shock (PTS) Rule 10CFR50.61, are based on the surveillance capsule removed from SONGS Unit 3 at 4.33 EFPY. Based on a capacity factor of 80 percent, the projected RTpts value for the limiting reactor vessel beltline plate material at the end of 40 years after issuance of the respective Operating Licenses (32 EFPY) are 146.5°F for Unit 2 (February 16, 2022) and 124.6°F for Unit 3 (November 15, 2022). The RTpts value for Unit 2 would be 123.5°F less than the Pressurized Thermal Shock (PTS) Rule 10CFR50.61 screening criterion of 270°F for the beltline material. Hence, the PTS screening criteria would not be exceeded

as a result of revising the OL expiration date. In accordance with 10CFR50.61, SCE will update the RTpts values whenever changes in core loadings, surveillance measurements, or other information indicates a significant change in the projected values. Periodic reactor vessel inservice inspection and testing requirements provide further assurance that any degradation will be identified in a timely manner.

Using the methodology of Regulatory Guide 1.99, Radiation Embrittlement of Reactor Vessel Materials, Revision 2, and plant-specific surveillance data, the most limiting reactor vessel reference temperatures (pressurized thermal shock) for revising the expiration dates for a 40 year operating life are 146.5°F for the Unit 2 limiting base plate (Plate C6404-5) and 124.6°F for the Unit 3 limiting base plate (Plate C6802-1). The calculation was performed based on the following information:

	Unit 2 (Plate C6404-5)	Unit 3 (Plate C6802-1)
• Chemistry factor:	75°F	37°F
• Margin:	34°F	34°F
• Initial Reference Temperature Nil Ductility Temperature (RTndt):	10°F	40°F

- Neutron fluence (projected value for the proposed license expiration dates): 4.2×10^{19} n/cm^2 (E>1MeV).

Note: The previous Unit 3 RTndt value of 75°F was provided based on the conservative of two RTndt values developed for plate C6802-1. One value is based on solely Material Certification Report (MCR) data (40°F) and the other value is based on combined MCR and Surveillance Baseline Data (75°F). The RTndt value of 75°F previously used was conservative for comparison against the PTS screening criteria. The RTndt value for plate C6802-1 is 40°F as determined solely by the MCR data per Attachment E to a June 22, 1994, submittal (Reference 6).

The fluence projections are assumed to be the same for both Units 2 and 3 because the units have identical core design, fuel loading pattern, and essentially the same past and projected operating history.

The neutron fluence value used is the most limiting value possible. This number is based on neutron flux values obtained from the Unit 3 reactor vessel surveillance capsule. The Unit 3 surveillance capsule data represented the combined results of the standard and low leakage core designs. A plant capacity factor of 80% was used in calculating the neutron fluence.

The 40 year service life design does not imply that some equipment and components will not require replacement during the plant lifetime. The General Design Criteria established the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety. Design features have been incorporated and inservice inspection programs are in place, to facilitate the inspection and testing of systems and equipment, ensuring continuous operating integrity. Any degradation in plant equipment is identified and corrected based on the surveillance and maintenance programs, which are implemented in accordance with ASME codes, 10CFR50.65, and the plants' Technical Specifications. Such programs will ensure the operating integrity of the plant for the entire OL.

The structural integrity of San Onofre's critical plant structures (the containment liner encased within a concrete shell, the internal concrete and steel structures, and the other safety related structures such as the Safety Equipment Building, Intake Structure, and Auxiliary Buildings) is assured for periods well in excess of the proposed 40 year operating license terms. The conservative load combinations used during the plants' design phase resulted in much stronger structures than required to support conventional operational loads. Material testing during construction ensured compliance to strict construction and quality control procedures. SONGS personnel regularly inspect concrete surfaces and protective coatings under 10CFR50.65 (the Maintenance Rule) and other Inservice Inspection (ISI) requirements to establish condition assessments of the structures. The maintenance staff at SONGS completes the required repairs in accordance with the applicable codes to ensure the continued structural integrity and preservation of the buildings. Research conducted by the American Concrete Institute (ACI) (ACI-SP-117, "Long Term Serviceability of Concrete Structures," January 1989) for nuclear power plant structures concludes that planned service lives in excess of 60 years are appropriate, provided the owner completes appropriate preservation actions. Therefore, it can be concluded that the design life of critical plant structures can be projected to exceed the proposed life increase.

With regard to equipment lifetime, it is noted that some components will be expected to require replacement during the life of the plant. Such replacements are more or less typical for all power plants and are part of plant maintenance activities. As such, they are unaffected by the requested change to the SONGS 2 and 3 OL expiration dates. To date some of the major component replacements at SONGS 2 and 3 have included the 3rd point heaters, high pressure turbine diaphragms, low pressure turbines, and the salt water cooling pumps. These upgrades were performed to either increase the efficiency and/or the reliability of plant systems.

Environmental qualification (EQ) aging analyses of plant safety related electrical equipment, in accordance with 10CFR50.49, has identified qualified lifetimes for this equipment. These lifetimes have been incorporated into the SONGS 2 and 3 maintenance and surveillance procedures to ensure that safety related electrical equipment remains qualified and available to perform its safety function regardless of the overall age of the plant.

The effect that the proposed change would have on the environment and the general public must be evaluated. With regard to non-radiological discharges, the National Pollutant Discharge Elimination System (NPDES) permits were issued August 11, 1999 and will not expire until August 11, 2004. SCE expects subsequent NPDES permits will be issued every five (5) years upon expiration in 2004. There will be no significant non-radiological impact on the environment with regard to liquid discharges from SONGS 2 and 3 as a result of changing the OL expiration date since SCE will abide by the NPDES permits. In fact, continued operation of SONGS 2 and 3 will avert non-radiological environmental effects of airborne effluents from non-nuclear plants that would be required to operate in order to replace the power supplied by SONGS 2 and 3.

Release of radioactive liquids and gases have historically been lower for SONGS 2 and 3 than those estimated in the Environmental Report (ER) (reference 2) and the Final Environmental Statement (FES) (reference 3) and are expected to remain so. Table 1 is a summary of the most recent SONGS 2 and 3 offsite dose assessments, covering the period January 1, 1998 through December 31, 1998.
Land use changes that have occurred over time have been duly reported and incorporated into offsite dose calculations. These doses are typical and demonstrate that releases at SONGS 2 and 3 are well below the FES estimates and the 10CFR50 Appendix I limits. As such, no significant impact of these releases is expected in connection with the proposed change.

The curie content of radioactive solid waste shipped from SONGS 2 and 3 historically has been less than projected in the ER and the FES. (Note: solid radioactive waste shipments are made collectively from Units 1, 2, and 3 and are reported as common to the facility.) In addition, SONGS 2 is storing 900 Unit 2 spent fuel assemblies and 70 Unit 1 spent fuel assemblies in the Spent Fuel Pool (SFP) as a result of operation through Cycle 9 (January, 1999) and in support of Unit 1 fuel storage. Also, SONGS 3 is storing 900 Unit 3 spent fuel assemblies and 118 Unit 1 spent fuel assemblies in the Spent Fuel Pool (SFP) as a result of operation through Cycle 9 (March, 1999) and in support of Unit 1 fuel storage. Each of the SONGS Units 2 and 3 SFPs has a capacity for 1542 assemblies.

The approximate curie content of the solid radioactive waste shipped from SONGS for the last four years is listed below. (See the Radioactive Shipment topic in the Units 2 and 3 and the Common sections of the SONGS "Annual Radioactive Effluent Release Reports" for the four year time period for the exact amount and classification of wastes shipped.)

1995	30 curies
1996	1132 curies
1997	38 curies
1998	1 curie

SONGS 2 and 3 are currently in their tenth fuel cycle. The energy demands for this cycle and the nine cycles before it have varied from approximately 320 to 580 EFPDs, and the fuel design specifications have been set to meet these demands. Generally, cycle length has been increasing since Cycle 2. SCE is tentatively planning to go to full 24 month cycles in the future. Fuel enrichment has ranged from a minimum of 1.87 weight percent U-235 to 4.7 weight percent U-235. At present, SONGS 2 and 3 are licensed to store fuel with enrichments up to 4.8 weight percent U-235. It should be noted that, to date, the maximum burn-up of any single fuel assembly is 52,422 MWD/MTU, on an assembly that was discharged at the end of Cycle 9. The average burn-up of all assemblies stored in the SFP from the recent fuel cycles is approximately 45 GWD/MTU.

SCE reviewed the staff's assessment of the environmental effects of transportation (53 FR 30355). The SONGS 2 and 3 Technical Specifications restrict the enrichment of reload fuel to no more than 4.8 weight percent of uranium-235. SONGS 2 and 3 have some fuel assemblies in the Spent Fuel Pool with a burnup of greater than 33,000 MWD/T (but less than 60,000 MWD/T). The NRC generic assessment (53 FR 30355) indicates that the environmental impact of extended fuel irradiation up to 60,000 MWD/T and increased enrichment up to 5 weight percent are bounded by the impacts reported in Table S-4 of 10 CFR 51.52. This generic assessment is applicable to SONGS 2 and 3, therefore a detailed analysis as described in 10 CFR 51.52(b) does not have to be performed.

The total projected number of fuel cycles before the current OL expiration date (October 18, 2013) is seventeen (17) for Unit 2 and for Unit 3. Revising the OL expiration dates to be 40 years from the issuance of the License for Unit 3 will increase the number of complete[1] fuel cycles by approximately four (4) in each unit to a total of twenty-one (21), based on current cycle lengths. The spent fuel discharged per cycle along with the projected discharges out to 2022 is provided in Tables 2a and 2b. The total number of discharged fuel assemblies including a full core discharge at the end of SONGS 2 and 3's current OL expiration date (October 18, 2013) is 1817 for each unit. The projected total

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[1] If SCE decides to operate a final partial fuel cycle, less than 100 additional assemblies would be added to the total number of assemblies.

number of spent fuel assemblies including a full core discharge for Units 2 and 3 for a 40 year operating life will be between 2217 and 2317.

SCE does not expect that the U. S. Department of Energy (DOE) will begin removing spent fuel from nuclear facilities in time to provide for the storage of additional assemblies. Therefore, SCE is evaluating the use of dry storage and fuel rod consolidation as alternative storage methods for SONGS 2 and 3 spent fuel. Since these technologies are feasible and can be licensed, either will provide a viable interim measure for fuel storage. Furthermore, the projected use of alternative storage methods for fuel assemblies does not affect the NRC's Waste Confidence Rulemaking decision.

Changing the OL expiration dates to 40 years from the issuance of the License will not change the alternate method of storage but will increase the number of spent fuel assemblies by several hundred assemblies for each unit.

The occupational radiation exposure has historically been much lower for SONGS 2 and 3 than that projected in the Updated Final Safety Analysis Report (UFSAR) (reference 4) and the FES. As a result of the SONGS ALARA Program, collective occupational exposure has shown a steady decline. The five year annual average collective occupational exposure per reactor has dropped from about 250 person-rem/year in 1990 to about 125 person-rem/year in 1998. The projected collective occupational exposure per unit for SONGS 2 and 3 for the period of 2013 to 2023 is expected to average 125 person-rem per year. This projection is based on continued implementation of an aggressive ALARA program, including reviews of plant modifications, procedures, and maintenance activities, to ensure that occupational exposure is maintained as low as reasonably achievable.

The SONGS 2 and 3 occupational radiation exposure per unit for the last four years is:

1995	227 person-rem
1996	64 person-rem
1997	170 person-rem
1998	98 person-rem

The consequences of design basis accidents are determined in terms of the resulting exposure to the general public. A comparison of the population projections in the UFSAR within a ten (10) mile radius was made with the data from the 1990 federal census. The 1990 population estimates were 16% below the UFSAR projection for that same year. If this trend continues as expected, the population for the period of 2013 through 2022 should be lower than originally projected. Therefore, cumulative exposure to the general public due to a design basis accident would be less than originally projected because of the lower than projected population in the surrounding area.

The latest population data listed in the San Onofre Units 2 and 3 Updated Final Safety Analysis Report for the San Onofre vicinity were taken from the 1980 U. S. Census and are included on page 2.1-13 and Table 2.1-2. Population projections were made using the 1980 federal census data and population growth rates from the Southern California Association of Governments (SCAG) or from projections by the San Diego Association of Governments (SANDAG).

Census data for 1990 show a population close to 70,000 within a 10 mile radius of San Onofre. The California Office of Emergency Services 1997 population estimate for the 50 mile radius surrounding San Onofre is approximately 7,700,000.

SONGS 2 and 3 have been and continue to be a reliable source of electricity for the rate payers of the state of California. The potential economic benefits, based on wages for both SCE employees and contract employees, material purchases associated with the operation of the plant, and taxes (including payroll, property, and sales), for the revised period is estimated to be approximately $4 billion in nominal dollars for the period in question or 2.1 billion in constant 2000 dollars.

In addition to the economic benefits to the community, a substantial reduction in air emissions would also be a result of the proposed amendment. If the power from SONGS 2 and 3 was replaced by a gas-fired generator, an additional annual emission of approximately 15 billion pounds of carbon dioxide, 70 million pounds of nitrogen oxides, and 76,000 pounds of sulfur-dioxide would occur. Continued operation of SONGS 2 and 3 will avoid these emissions.

TABLE 1

RECENT OFFSITE DOSE ASSESSMENTS

PATHWAY	MAXIMUM TOTAL BODY DOSE (mr)
Gaseous Pathway:	
Noble Gases (gamma)	1.34E-02
(beta)	2.76E-02
Radiodines, Particulates and Tritium	1.74E-02
Liquid Pathway:	
All Releases (whole body)	6.72E-03
(organ)	2.87E-02

Based on the period of January 1, 1998 through December 31, 1998.

TABLE 2a
NUCLEAR FUEL DISCHARGE INFORMATION
San Onofre Unit 2

Cycle No.	Shutdown Dates Assemblies Discharges	Number of Spent Fuel Assemblies in Pool	Cumulative Total
01	10/1984	72	72
02	03/1986	88	160
03	08/1987	108	268
04	09/1989	108	376
05	08/1991	108	484
06	06/1993	108	592
07	02/1995	108	700
08	11/1996	100	800
09	01/1999	100	900
(ACTUAL CYCLE INFORMATION THROUGH CYCLE 9 PROJECTED THEREAFTER)			
10	10/2000	100	1000
11	07/2002	92	1100
12	04/2004	108	1200
13(1)	02/2006	100	1300
14	12/2007	100	1400
15(2)	10/2009	100	1500
16	08/2011	100	1600
17	06/2013	100	1700
18	04/2015	100	1800
19	02/2017	100	1900
20	12/2018	100	2000
21	10/2020	100	2100
22(3)	08/2022	—	—

1. Without additional action(s) Full Core Reserve (FCR) lost at 1487 cells. (217 Full Core Off Load + 1200 discharged assemblies + 70 discharged Unit 1 assemblies.)
2. Without additional action(s) all discharge capability lost. (Licensed spent fuel pool capacity of 1542 fuel assemblies.)
3. If SCE decides to operate a final partial fuel cycle, less than 100 additional assemblies would be added to the total number of assemblies.

TABLE 2b
NUCLEAR FUEL DISCHARGE INFORMATION
San Onofre Unit 3

Cycle No.	Shutdown Dates Assemblies Discharged	Number of Spent Fuel Assemblies in Pool	Cumulative Total
01	09/1985	72	72
02	01/1987	88	160
03	04/1988	108	268
04	04/1990	108	376
05	01/1992	108	484
06	10/1993	108	592
07	07/1995	108	700
08	04/1997	100	800
09	03/1999	100	900
(ACTUAL CYCLE INFORMATION THROUGH CYCLE 9 PROJECTED THEREAFTER)			
10	01/2001	100	1000
11	11/2002	100	1100
12	09/2004	100	1200
13(1)	07/2006	100	1300
14	05/2008	100	1400
15(2)	03/2010	100	1500
16	01/2012	100	1600
17	11/2013	100	1700
18	09/2015	100	1800
19	07/2017	100	1900
20	05/2019	100	2000
21	03/2021	100	2100
22(3)	01/2023	—	—

1. Without additional action(s) Full Core Reserve (FCR) lost at 1535 cells. (217 Full Core Off Load + 1200 discharged assemblies + 118 discharged Unit 1 assemblies.)
2. Without additional action(s) all discharge capability lost. (Licensed spent fuel pool capacity of 1542 fuel assemblies.)
3. If SCE decides to operate a final partial fuel cycle, less than 100 additional assemblies would be added to the total number of assemblies.

Section III - No Significant Hazards Consideration and Environmental Consideration

No Significant Hazards Consideration

The commission has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with a proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. A discussion of these standards as they relate to this amendment request follows to show that operation of the facility in accordance with this proposed Amendment does not:

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

Response:

The proposed change does not involve any changes to the design or operation of the San Onofre Nuclear Generating Station (SONGS) 2 and 3 which may affect the probability or consequences of an accident evaluated in the Updated Final Safety Analysis Report (UFSAR). SONGS 2 and 3 were designed and constructed on the basis of a forty (40) year life. The accidents analyzed in the UFSAR were postulated on the basis of a 40 year life. No changes will be made that could alter the design, construction, or postulated scenarios regarding accident initiation and/or response. Existing surveillance, inspection, testing and maintenance practices and procedures ensure that degradation in plant equipment, structures, and components will be identified and corrected throughout the life of the plant. The effect of aging of electrical equipment, in accordance with 10CFR50.49, has been incorporated into the plant maintenance and surveillance procedures. Therefore, the probability or consequences of a postulated accident previously evaluated in the UFSAR are not increased as a result of the proposed change.

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

Response:

The proposed change does not involve any changes to the physical structures, components, or systems of SONGS 2 and 3. Existing surveillance, inspection, testing, and maintenance practices and procedures will assure full operability for the plant's design lifetime of 40 years. Continued operation of SONGS 2 and 3 in accordance

with these approved procedures and practices will not create a new or different kind of accident.

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

Response:

There are no changes in the design, design basis, or operation of SONGS 2 and 3 associated with the proposed change. Existing surveillance, inspection, testing, and maintenance practices and procedures provide assurance that any degradation of equipment, structures, or components will be identified and corrected throughout the lifetime of the plant. These measures together with the continued operation of SONGS 2 and 3 in accordance with the Technical Specifications assure an adequate margin of safety is preserved on a continuous basis. Therefore, the proposed change does not result in a significant reduction in a margin of safety.

Based on the responses to these three criterion, because SONGS 2 and 3 was originally designed for a 40 year life, and because measures are in place to ensure its continued safe operation, The Southern California Edison Company (SCE) considers that the proposed change can be classified as not likely to involve a significant hazards consideration.

Environmental Consideration

SCE has determined that the proposed amendment involves no changes in the amount or type of effluent that may be released offsite, and results in no increase in individual or cumulative occupational radiation exposure from the original design. As described above, the proposed amendment involves no significant hazards consideration, and as such, meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Section IV - Impact of Change

This change will not adversely impact the following:

ALARA Program
Security and Fire Protection Programs
Emergency Plan
UFSAR or NRC Safety Evaluation Report (reference 5) Conclusions
Overall Plant Operations and the Environment

Section V - Conclusions

The incorporation of this change: a) will not increase the probability nor the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report; b) will not increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report; c) will not reduce the margin of safety as defined in the bases for any Technical Specification; d) does not constitute an unreviewed safety question; and e) involves no significant hazards considerations as defined in 10 CFR 50.92.

Section VI - References

1) DELETED

2) SONGS 2 and 3 Environmental Report, Operating License Stage (ER)

3) Final Environmental Statement Related to Operation of SONGS 2 and 3 (NUREG-0490) April, 1981

4) SONGS 2 and 3 Updated Final Safety Analysis Report (UFSAR)

5) SONGS 2 and 3 NRC Safety Evaluation Report

6) Letter from Walter C. Marsh (SCE) to the Document Control Desk (NRC) dated June 22, 1994; Subject: Dockets Nos. 50-361 and 50-352, Revision to Supplemental Response to Generic Letter 92-01, Revision 1, "Reactor Vessel Structural Integrity, 10CFR50.54(f)", San Onofre Nuclear Generating Station, Units 2 and 3.