

February 17, 2000

Mr. Harold B. Ray
Executive Vice President
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, California 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION UNITS 2 AND 3 -
ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT
RE: LICENSE AMENDMENTS FOR EXTENDING LICENSE EXPIRATION DATE
(TAC NOS. MA7348 AND MA7349)

Dear Mr. Ray:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application dated December 13, 1999 (PCN-507) to revise the expiration dates of San Onofre Units 2 and 3 operating licenses to February 16, 2022, and November 15, 2022, respectively.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA/

L. Raghavan, Senior Project Manager, Section 2
Project Directorate IV-2 & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-361
and 50-362

Enclosure: Environmental Assessment

cc w/encl: See next page

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San Onofre Nuclear Generating Station, Units 2 and 3

cc:

Mr. R. W. Krieger, Vice President
Southern California Edison Company
San Onofre Nuclear Generating Station
P. O. Box 128
San Clemente, CA 92674-0128

Mr. Steve Hsu
Radiologic Health Branch
State Department of Health Services
Post Office Box 942732
Sacramento, CA 94327-7320

Mr. Douglas K. Porter
Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, CA 91770

Mr. Ed Bailey, Radiation Program Director
Radiologic Health Branch
State Department of Health Services
Post Office Box 942732 (MS 178)
Sacramento, CA 94327-7320

Mr. David Spath, Chief
Division of Drinking Water and
Environmental Management
P. O. Box 942732
Sacramento, CA 94234-7320

Resident Inspector/San Onofre NPS
c/o U.S. Nuclear Regulatory Commission
Post Office Box 4329
San Clemente, CA 92674

Chairman, Board of Supervisors
County of San Diego
1600 Pacific Highway, Room 335
San Diego, CA 92101

Mayor
City of San Clemente
100 Avenida Presidio
San Clemente, CA 92672

Alan R. Watts, Esq.
Woodruff, Spradlin & Smart
701 S. Parker St. No. 7000
Orange, CA 92668-4720

Mr. Dwight E. Nunn, Vice President
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

Mr. Sherwin Harris
Resource Project Manager
Public Utilities Department
City of Riverside
3900 Main Street
Riverside, CA 92522

Mr. Robert A. Laurie, Commissioner
California Energy Commission
1516 Ninth Street (MS 31)
Sacramento, CA 95814

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Mr. David Farrel (5)
Environmental Review Coordinator
U.S. EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Michael Olson
San Onofre Liaison
San Diego Gas & Electric Company
P.O. Box 1831
San Diego, CA 92112-4150

UNITED STATES NUCLEAR REGULATORY COMMISSION

SOUTHERN CALIFORNIA EDISON

DOCKET NOS. 50-361 AND 50-362

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT NOS. 2 AND 3

ENVIRONMENTAL ASSESSMENT AND FINDING OF

NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an amendment to Facility Operating Licenses Nos. NPF-10 and NPF-15, issued to Southern California Edison Company (the licensee), for operation of the San Onofre Nuclear Generating Station (SONGS), Units Nos. 2 and 3, located in San Diego County, California.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

SONGS Units 2 and 3 are currently licensed to operate 40 years commencing with the issuance of their construction permits on October 18, 1973. At present, the operating licenses (OLs) for both units expire on October 18, 2013. The licensee seeks an extension of the license term for SONGS Units 2 and 3 to allow them to operate until 40 years from the issuance of their respective OLs. SONGS Units 2 and 3 OLs were issued on February 16, 1982, and November 15, 1982, respectively. The proposed change would extend the license terms for SONGS Unit 2, to February 16, 2022, and for SONGS Unit 3, to November 15, 2022. This action would extend the period of operation to the full 40 years provided by the Atomic Energy Act and the *Code of Federal Regulations*.

The proposed action is in accordance with the licensee's application for license amendments dated December 13, 1999.

The Need for the Proposed Action:

The proposed action would allow the licensee to operate SONGS Units 2 and 3 for 40 years from the date of issuance of their operating licenses. This extension would permit the units to operate for the full 40-year design-basis lifetime, consistent with the Commission policy stated in Memorandum dated August 16, 1982, from William Dircks, Executive Director for Operations, to the Commissioners, and as evidenced by the issuance of over 50 such extensions to other licensees.

Environmental Impacts of the Proposed Action:

The NRC has completed its evaluation of the proposed action and concludes that the extension of SONGS' Units 2 and 3 Operating Licenses Nos. NPF-10 and NPF-15 would not create any new or unreviewed environmental impacts. This change does not involve any physical modifications to the facilities, and there are no new or unreviewed environmental impacts that were not considered as part of the Final Environmental Statement (FES) dated March 1973 relating to operation of SONGS Units 2 and 3. Evaluations for the FES considered a 40-year operating life. The considerations involved in the NRC staff's determination are discussed below.

Radiological Impacts of the Hypothetical Design-Basis Accidents

The offsite exposure from releases during postulated accidents were evaluated and found acceptable during the operating license stage and subsequent license amendments. This type of evaluation involves four issues: (1) type and probability of postulated accidents, (2) the radioactivity releases calculated for each accident, (3) the assumed meteorological conditions, and (4) population size and distribution in the vicinity of the facility. The staff has concluded that neither the type and probability of postulated accidents nor the radioactivity releases calculated for each accident would change through the proposed extended operation. Also, the meteorological conditions are not expected to change during the proposed extended

operation and, therefore, any further consideration is not warranted. Thus the population size and distribution in the vicinity of the facility are the only time-dependent parameters that require consideration. The consequences of design-basis accidents are determined in terms of the resulting exposure to the general public. The population data listed in the SONGS Updated Final Safety Analysis Report (UFSAR) were taken from the 1980 U. S. Census. The licensee compared the projected population data in the UFSAR within a 10-mile radius with the 1990 Federal census data and concluded that the census data is bounded by the UFSAR projection data for that same year. Based on this comparison, the licensee expects this trend to continue and concludes that 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 not be adversely affected. Further, there are no changes to the current exclusion area, low population zone, and nearest population center distance, and the licensee will continue to meet the requirements of 10 CFR 100.11(a) for the proposed license term extension. Also, there is no expected change in land usage during the license terms that would affect offsite dose calculations. Accordingly, the staff concludes that the proposed action will not significantly change previous conclusions regarding the potential environmental effects of offsite releases from postulated accident conditions.

Radiological Impacts of Annual Releases

Onsite Doses

In accordance with the plant Technical Specifications (TSs), the licensee has established several radiation monitoring programs including a program to maintain radiation doses "As Low As Reasonably Achievable (ALARA)" guidelines (10 CFR Part 50, Appendix I guidelines). On an annual basis, the licensee submits an Occupational Radiation Exposure Report to the NRC. The SONGS Units 2 and 3 occupational radiation exposure per unit for the last 4 years has been:

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

The data indicate declining trend in the collective occupational exposure at SONGS. The 5-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. Through continued implementation of ALARA and other programs, the licensee expects to maintain its collective occupational exposure per units for SONGS Units 2 and 3 for the period of 2013 to 2022 to an average of 125 person-rem per year. Based on its review of historical radiation exposure data at SONGS and the licensee's continued implementation of ALARA, the staff concludes that the projected occupational exposures through the proposed extended period will continue to remain significantly below the UFSAR estimate (411 person-rem per unit).

Offsite Doses

Appendix I guidelines on ALARA discussed above as they relate to onsite doses also apply to releases that could cause offsite doses. The Appendix I guidelines establish radioactive design/dose objectives for liquid and gaseous offsite releases including iodine particulate radionuclides. In addition, routine releases to the environment are governed by 10 CFR Part 20, which states that such releases should be ALARA. Each year, the licensee submits an "Annual Radioactive Effluent Release Report" that provides an annual assessment of the radiation dose as a result of effluents released from the facility. These reports show that release of radioactive liquids and gases have historically been lower than those estimated in the FES. As a result of the continued implementation of the ALARA program, occupational exposures can be expected to remain lower than the FES estimates.

In accordance with plant TSSs, the licensee has an established Radiological Environmental Monitoring Program by which the licensee monitors the effect of operation of its facilities on the environment. This is accomplished by continuously measuring radiation levels and airborne radioactivity levels and periodically measuring amounts of radioactivity in samples at various locations surrounding the plants. Continued environmental monitoring and surveillance under the program ensures early detection of any increase in exposures over the proposed license term extension.

Accordingly, the staff concludes that the radiological impact on the public due to the proposed license term extension would not increase over that previously evaluated in the FES and the occupational exposures will be consistent with the industry average and in accordance with 10 CFR Part 20.

The curie content of radioactive solid waste shipped from SONGS has historically been less than the FES estimates and is expected to remain so.

Based on the conservative population estimate in the FES and low radiological exposure from plant releases during normal operation and postulated accidents, and the environmental monitoring program, the staff concludes that the radiological impact on the public due to the proposed action would be insignificant and the conclusions of the FES remain valid.

Environmental Impact of the Uranium Fuel Cycle

At present, SONGS Units 2 and 3 are licensed to store fuel with enrichments up to 4.8 weight percent uranium-235 (U-235). As part of its safety evaluation associated with this 4.8 weight percent U-235 fuel enrichment, the staff previously evaluated the environmental impacts of transportation of effects resulting from the use of higher enrichment and extended radiation. In its Environmental Assessment dated September 26, 1996 (61 FR 50513), the staff concluded that the environmental impact of extended fuel irradiation up to 60,000 megawatt-days per metric ton uranium (MWD/MTU) and increased enrichment up to 5 weight percent are bounded by the impacts reported in Table S-4 of 10 CFR 51.52.

The total projected number of fuel cycles before the current OL expiration date (October 18, 2013) is 17 for Units 2 and 3. Based on current cycle lengths, the proposed extended operating license term will increase the number of complete fuel cycles by approximately 4 in each unit to a total of 21. At present, the licensed capacity of the spent fuel pool (SFP) for each unit is 1542 fuel assemblies. The licensee-projected total 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 which is higher than the licensed SFP capacity. To store the additional fuel assemblies, the licensee is evaluating the use of dry storage and fuel rod consolidation as alternative storage methods for SONGS Units 2 and 3 spent fuel and will seek necessary regulatory approval.

Based on the above, the staff concludes that there are no significant changes in the environmental impact related to the uranium fuel cycle due to the proposed extended operation of SONGS Units 2 and 3.

Nonradiological Impacts

The major nonradiological impact of the plant on the environment is the operation of the plant's cooling water system and discharge to the Pacific Ocean. The California Regional Water Quality Control Board (the Board) has reviewed and considered the environmental impacts of the SONGS units' water discharge into the Pacific Ocean in its issuance of the National Pollution Discharge Elimination System (NPDES) permit and renewals. The NPDES permit is conditional upon the discharge's complying with provisions of the Board and of the Clean Water Act (as amended or as supplemented by implementing guidelines and regulations). On April 11, 1999, the Board adopted and renewed NPDES permits to SONGS Units 2 and 3 until August 11, 2004. The Board found that discharges from SONGS Units 2 and 3 are consistent with its policy with respect to maintaining high quality waters in California. The licensee will continue to abide by the NPDES permits and, accordingly, expects the Board

to renew and issue NPDES permits every 5 years. Also, the proposed action does not involve any historic sites. Therefore, the NRC concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

Alternatives to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the “no action” alternative). Denial of the application would result in no change in current environmental impacts. Continued operation of SONGS Units 2 and 3 would avert potential nonradiological environmental effects of greenhouse gases and other airborne effluents from non-nuclear plants that would be required to operate in order to replace the power supplied by the SONGS units.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the FES for the SONGS Units 2 and 3.

Agencies and Persons Consulted:

In accordance with its stated policy, on February 8, 2000, the staff consulted with the California State official, Mr. Steven Hsu, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

The NRC stated in its proposed no significant hazards consideration determination dated December 29, 1999 (64 FR 73098), that the licensee’s proposed extension to the operating license term is consistent with the current NRC policy and the originally engineered design life of the plant, i.e., 40 years of operation. Due to design conservatism, maintenance, and surveillance programs and the plant TSs, the proposed additional years of operation would

have no significant impact on safety. That is, regardless of the age of the facility, the above-mentioned programs and TSs would ensure that systems, structures, and components will be refurbished or replaced to maintain their required safety function over the 40 years of operation. On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated December 13, 1999, which is available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC. Publically available records will be accessible electronically from the ADAMS Public Library Component on the NRC Web site, <http://www.nrc.gov> (the Electronic Reading Room).

Dated at Rockville, Maryland, this 17th day of February 2000.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

L. Raghavan, Senior Project Manager, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation