February 27, 1990

Docket Nos. 50-361
and 50-362

Mr. Harold B. Ray
Vice President
Southern California Edison Company
Irvine Operations Center
23 Parker Street
Irvine, California 92718

Mr. Gary D. Cotton
Senior Vice President
Engineering and Operations
San Diego Gas and Electric Company
101 Ash Street
P.O. Box 1831
San Diego, California 92112

Gentlemen:

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT - SPENT FUEL POOL EXPANSION (TAC NOS. 68308 AND 68309)

By letter dated March 10, 1989, as supplemented by letters dated April 19, May 4, May 19, June 1, June 2, September 22, November 2 and November 9, 1989, January 18, February 9 and February 16, 1990, Southern California Edison Company requested a license amendment to make an addition to the Technical Specifications relating to the maximum storage capacity of the spent fuel pool.

Enclosed is our Environmental Assessment related to this proposed action. Based on our assessment, we have concluded that there are no significant radiological or nonradiological impacts associated with the proposed spent fuel pool expansion and it will have no significant impact on the quality of the human environment.

We have also enclosed a Notice of Issuance of Environmental Assessment and Finding of No Significant Impact. This Notice is being forwarded to the Office of the Federal Register for publication.

Sincerely,

original signed by Lawrence Kokajko

Lawrence E. Kokajko, Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/enclosures:
See next page

DISTRIBUTION

Docket File	LKokajko	Wanda Jones	PD5 Plant File
NRC & LPDRs	OGC	JCalvo	Region V (4)
PD5 Reading	DHagan	ACRS (10)	
JZwolinski	EJordan	GPA/PA	
PShea	GHill (4)	OC/LFMB	

*See previous concurrance

DRSP/PD5*	DRSP/PD5*	OGC*	DRSP/AD:PD5
PShea	LKokajko:dr		GMTrammell
2/1/90	2/12/90	2/16/90	2/27/90

[ES TAC 68308/9

9003090370 900227
PDR ADOCK 05000361
P PNU

DF01
1/1

Docket Nos. 50-361
and 50-362

Mr. Harold B. Ray
Vice President
Southern California Edison Company
Irvine Operations Center
23 Parker Street
Irvine, California 92718

Mr. Gary D. Cotton
Senior Vice President
Engineering and Operations
San Diego Gas and Electric Company
101 Ash Street
P.O. Box 1831
San Diego, California 92112

Gentlemen:

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT - SPENT FUEL POOL EXPANSION (TAC NOS. 68308 AND 68309)

By letter dated March 10, 1989, as supplemented by letters dated April 19, May 4, May 19, June 1, June 2, September 22, November 2 and November 9, 1989 and January 18, 1990, Southern California Edison Company requested a license amendment to make an addition to the Technical Specifications relating to the maximum storage capacity of the spent fuel pool.

Enclosed is our Environmental Assessment related to this proposed action. Based on our assessment, we have concluded that there are no significant radiological or nonradiological impacts associated with the proposed spent fuel pool expansion and it will have no significant impact on the quality of the human environment.

We have also enclosed a Notice of Issuance of Environmental Assessment and Finding of No Significant Impact. This Notice is being forwarded to the Office of the Federal Register for publication.

Sincerely,

Lawrence E. Kokajko, Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/enclosures:
See next page

DRSP/PD5	DRSP/PD5	OGC	DRSP/AD:PD5
PSHed	LKokajko:dr	BMS	CMTrammell
2/ /90	2/12/90	2/16/90	/ /90

[ES TAC 68308/9

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

February 27, 1990

Docket Nos. 50-361
and 50-362

Mr. Harold B. Ray
Vice President
Southern California Edison Company
Irvine Operations Center
23 Parker Street
Irvine, California 92718

Mr. Gary D. Cotton
Senior Vice President
Engineering and Operations
San Diego Gas and Electric Company
101 Ash Street
P.O. Box 1831
San Diego, California 92112

Gentlemen:

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT - SPENT FUEL POOL EXPANSION (TAC NOS. 68308 AND 68309)

By letter dated March 10, 1989, as supplemented by letters dated April 19, May 4, May 19, June 1, June 2, September 22, November 2 and November 9, 1989, January 18, February 9 and February 16, 1990, Southern California Edison Company requested a license amendment to make an addition to the Technical Specifications relating to the maximum storage capacity of the spent fuel pool.

Enclosed is our Environmental Assessment related to this proposed action. Based on our assessment, we have concluded that there are no significant radiological or nonradiological impacts associated with the proposed spent fuel pool expansion and it will have no significant impact on the quality of the human environment.

We have also enclosed a Notice of Issuance of Environmental Assessment and Finding of No Significant Impact. This Notice is being forwarded to the Office of the Federal Register for publication.

Sincerely,

L. E. Kokajko

Lawrence E. Kokajko, Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/enclosures:
See next page

Messrs Ray and Cotton
Southern California Edison Company

San Onofre Nuclear Generating
Station, Units 2 and 3

cc:
Charles R. Kocher, Esq.
James A. Beoletto, Esq.
Southern California Edison Company
Irvine Operations Center
23 Parker
Irvine, California 92718

Orrick, Herrington & Sutcliffe
ATTN: David R. Pigott, Esq.
600 Montgomery Street
San Francisco, California 94111

Alan R. Watts, Esq.
Rourke & Woodruff
701 S. Parker St. No. 7000
Orange, California 92668-4702

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

Mr. Charles B. Brinkman
Combustion Engineering, Inc.
12300 Twinbrook Parkway, Suite 330
Rockville, Maryland 20852

Mr. Phil Johnson
U.S. Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, California 94596

Mr. Don Womeldorf
Chief Environmental Management Branch
California Department of Health
714 P Street, Room 616
Sacramento, California 95814

Mr. F. B. Marsh, Project Manager
Bechtel Power Corporation
P.O. Box 60860
Terminal Annex
Los Angeles, California 90060

Mr. Robert G. Lacy
Manager, Nuclear Department
San Diego Gas & Electric Company
P. O. Box 1831
San Diego, California 92112

Mr. John Hickman
Senior Health Physicist
Environmental Radioactive Mgmt. Unit
Environmental Management Branch
State Department of Health Services
714 P Street, Room 616
Sacramento, California 95814

Resident Inspector, San Onofre NPS
c/o U.S. Nuclear Regulatory Commission
Post Office Box 4329
San Clemente, California 92672

Mayor, City of San Clemente
San Clemente, California 92672

Regional Administrator, Region V
U.S. Nuclear Regulatory Commission
1450 Maria Lane/Suite 210
Walnut Creek, California 94596

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

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ENVIRONMENTAL ASSESSMENT

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO SPENT FUEL POOL RERACKING

FACILITY OPERATING LICENSE NOS. NPF-10 AND NPF-15

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

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

DOCKET NOS. 50-361 AND 50-362

1.0 INTRODUCTION

1.1 Description of the Proposed Action

By letter dated March 10, 1989 and supplemented by letters dated April 19, May 4, May 19, June 1, June 2, September 22, November 2 and November 9, 1989, January 18, February 9, and February 16, 1990, Southern California Edison Company et al. (SCE or the licensee) requested amendments to the Technical Specifications (TS) of Facility Operating License Nos. NPF-10 and NPF-15 for San Onofre Nuclear Generating Station, Unit Nos. 2 and 3 (SONGS 2/3). The purpose of the requested amendments is to increase the capacity of the fuel storage racks at SONGS 2/3 from 800 to 1542 fuel assembly storage locations and to conduct specific heavy load lifts above the new storage racks that are required for construction and normal fuel pool operations. The proposed changes would revise TS 3/4.9.7, "Fuel Handling Maching-Spent Fuel Storage Pool Building;" TS 3/4.9.12, "Fuel Handling Building Post Accident Cleanup Filter System," new TS 3/4.9.13, "Spent Fuel Pool Boron Concentration;" TS 5.6.1(b) and 5.6.2, "Fuel Storage Criticality;" TS 5.6.3, "Fuel Storage Drainage;" and TS 5.6.4, "Fuel Storage Capacity." Also, the proposed changes would revise the associated bases.

The licensee has proposed replacing the existing spent fuel racks, which have 800 storage locations, with new high density spent fuel racks, with 1542 fuel assembly storage locations at SONGS 2/3. The new racks, would be free standing and use Boraflex neutron absorbing material for criticality control. A two region design would be used; with 312 storage locations in Region I for storage of all types of SONGS Unit No. 1 and SONGS 2/3 uranium oxide fuel; and 1230 storage locations in Region II for storage of SONGS Unit No. 1 and SONGS 2/3 uranium oxide fuel which either meets specified burnup criteria or is stored in prescribed patterns. Approval of storage of spent fuel produced by

9003090371 900227
PDR ADOCK 05000361
P PNU

operation of SONGS Unit No. 1 in either SONGS Unit Nos. 2 or 3 was authorized June 22, 1988 by Amendments 63 and 52, respectively. This change would extend the full core reserve storage capacity for each SONGS 2/3 unit through Cycle 11 operation which is scheduled to begin in 2001 for Unit 2 and 2002 and for Unit 3.

1.2 Need for Increased Storage Capacity

The staff's Safety Evaluation Report, NUREG-0712, dated February 1981, approved storage for 800 fuel assemblies in the spent fuel racks at Units 2 and 3. With the existing 800 storage locations in the spent fuel storage racks, Unit 2 and Unit 3 will each retain their full core reserve storage capacity through Cycle 6 which is scheduled to begin in 1991 and 1992, respectively. Higher density storage of fuel assemblies expands the capacity of each existing pool to 1542 assemblies, extending the full core reserve capability for Unit 2 and Unit 3 through Cycle 11 operation which is scheduled to begin in 2001 and 2002, respectively.

The proposed plan for installing the new racks fundamentally meets the objective of keeping occupational exposures to a level that is as low as reasonably achievable. The operations will occur in pool areas as remote as possible from the currently stored spent fuel.

The Nuclear Waste Policy Act of 1982 provided for limited away-from-reactor storage, and stipulated that a spent fuel repository would be available by 1998. Since the Act does not require a repository before this date, it is not clear whether there will be any place to ship spent fuel in the early-to-mid-1990's. Therefore, in the interim, the licensee needs to provide more storage capacity.

1.3 Alternatives

Commercial reprocessing of spent fuel has not developed as originally anticipated. In 1975, the Nuclear Regulatory Commission directed its staff to prepare a Generic Environmental Impact Statement (GEIS) on spent fuel storage. The Commission directed the staff to analyze alternatives for the handling and storage of spent light water power reactor fuel with particular emphasis on developing long-range policy. The GEIS was to consider alternative methods of spent fuel storage, as well as the possible restriction on termination of the generation of spent fuel through nuclear power shutdown.

A "Final Generic Environmental Impact Statement (FGEIS) on Handling and Storage of Spent Light Water Power Reactor Fuel" (NUREG-0575), Volumes 1-3, was issued by the NRC in August 1979. The finding of the FGEIS is that the environmental impact costs of interim storage are essentially negligible, regardless of where such spent fuel is stored. A comparison of the impact costs of various alternatives reflects the advantage of continued generation of nuclear power versus its replacement by coal-fired power generation. Continued nuclear generation of power versus its replacement by oil-fired generation provides an even greater economic advantage. In the bounding case considered in the FGEIS, that of shutting down the reactor when the existing spent fuel storage capacity is filled, the cost of replacing nuclear stations before the end of their normal lifetime makes this alternative uneconomical. The storage of spent fuel as evaluated in NUREG-0575 is considered to be an interim action, not a final solution to permanent disposal.

One spent fuel storage alternative considered in detail in the FGEIS is the expansion of the onsite fuel storage capacity by modification of the existing spent fuel pools. Applications for more than 100 spent fuel pool expansions have been received and have been approved or are under review by the NRC. The finding in each case has been that the environmental impact of such increased storage capacity is negligible. However, since there are variations in storage design and limitations caused by the spent fuel already stored in some of the pools, the FGEIS recommends that licensing reviews be done on a case-by-case basis to resolve plant-specific concerns.

The continuing validity and site specific applicability of the conclusions in NUREG-0575 have been confirmed in the Environmental Assessments for the Surry and H.B. Robinson Plants independent spent fuel storage installations.

The licensee has considered several alternatives to the proposed action of the spent fuel pool expansion. The staff has evaluated these and certain other alternatives with respect to the need for proposed action as discussed in Section 1.2 of this assessment. The following alternatives were considered by the staff:

(1) Shipment of spent fuel to a permanent federal fuel storage/disposal facility.

(2) Shipment of fuel to a reprocessing facility.

(3) Shipment of fuel to another utility or site for storage.

(4) Reduction of spent fuel generation.

(5) Construction of a new independent spent fuel storage installation (ISFSI).

(6) No action taken.

Each of these alternatives is discussed below.

1. <u>Shipment of Spent Fuel to a Permanent Federal Fuel Storage/Disposal Facility</u>

Shipment to a permanent federal fuel storage disposal facility is an alternative to increasing the onsite spent fuel storage capacity. The U.S. Department of Energy (DOE) is developing a repository under the Nuclear Waste Policy Act of 1982 (NWPA). However, the facility is not likely to be ready to receive spent fuel until the year 2003, at the earliest. The existing SONGS 2/3 spent fuel storage pools will retain full core offload capability through Cycle 6 which is scheduled to begin in 1991 and 1992 for Units 2 and 3, respectively. Therefore, spent fuel acceptance and disposal by DOE is not an alternative to increased onsite pool storage capacity.

As an interim measure, shipment to a Monitored Retrievable Storage (MRS) facility is another alternative to increasing the onsite spent fuel storage capacity. DOE, under the NWPA, has recently submitted its MRS proposal to

Congress. Because Congress has not authorized an MRS and because one is not projected to be available before 1998, this alternative does not meet the near-term storage needs of SONGS 2/3.

Under the NWPA, the federal government has the responsibility to provide not more than 1900 metric tons capacity for the interim storage of spent fuel. The impacts of storing fuel at a Federal Interim Storage (FIS) facility fall within those already assessed by the NRC in NUREG-0575. In enacting NWPA, Congress found that the owners and operators of nuclear power stations have the primary responsibility for providing interim storage for spent nuclear fuel. In accordance with the NWPA and 10 CFR Part 53, shipping of spent fuel to an FIS facility is considered a last resort alternative. At this time, the licensee cannot take advantage of FIS because existing storage capacity is not maximized. Therefore, the licensee has been diligently pursuing this application for the spent fuel pool expansion at this time.

2. Shipment of Fuel to a Reprocessing Facility

Reprocessing of spent fuel from SONGS 2/3 is not viable because presently there is no operating commercial reprocessing facility in the United States, nor is there the prospect for one in the foreseeable future.

3. Shipment of Fuel to Another Utility or Site for Storage

The shipment of spent fuel from SONGS 2/3 to the storage facility of another utility company could provide short-term relief from the storage capacity problem. However, the NWPA and 10 CFR Part 53 clearly place the responsibility for the interim storage of spent nuclear fuel with each owner or operator of a nuclear power plant. Moreover, transshipment of spent fuel to and its storage at another site would entail potential environmental impacts greater than those associated with the proposed increased storage at SONGS 2/3 site. Therefore, this is not considered a practical or reasonable alternative.

4. Reduction of Spent Fuel Generation

Improved usage of fuel in the reactor and/or operation at a reduced power level would extend the life of the fuel in the reactor. In the case of extended burnup of fuel assemblies, the fuel cycle would be extended and fewer offloads would take place. However, the current storage capacity would still be quickly exhausted as discussed in Section 1.2. Operation at reduced power would not make effective use of available resources and would thus result in economic penalties.

5. Construction of A New Independent Spent Fuel Storage Installation

Additional storage capacity could be developed by building a new, independent spent fuel storage installation (ISFSI), similar either to the existing pool or a dry storage installation. The NRC staff has generically assessed the impacts of the pool alternative and found, as reported in NUREG-0575, that "the storage of LWR spent fuels in water pools has an insignificant impact on the environment." A generic assessment for the dry storage alternative has not been made by the staff. However, assessments for the dry cask ISFSI at the

Surry Power Station and the dry modular concrete ISFSI at the H.B. Robinson Steam Electric Plant Unit 2 and the Oconee Nuclear Station resulted in findings of no significant impact.

While these alternatives are environmentally acceptable, such a new storage facility, either at SONGS 2/3 or at a location offsite, would require new site-specific design and construction, including equipment for the transfer of spent fuel. NRC review, evaluation and licensing of such a facility would also be required. It is not likely that this entire effort would be completed in time to meet the need for additional capacity as discussed above. Furthermore, such construction would not utilize the existing expansion capability of the existing pool and thus would waste resources.

6. No Action Taken

If no action were taken, i.e., the spent fuel pool storage capacity remains at 800 locations, the storage capacity would become exhausted in the very near future and SONGS 2/3 would have to be shut down. Such termination of operations would result in no further generation of spent fuel, thereby eliminating the need for increased spent fuel storage capacity. The impacts of terminating the generation of spent fuel by ceasing the operation of existing nuclear power plants (i.e., ceasing generation of electric power) when their spent fuel pools become filled was evaluated in NUREG-0575 and found to be undesirable. This alternative would be a waste of an available resource, SONGS 2/3 itself, and is not considered viable.

In summary, the only long-term alternative that could provide an alternative solution to the licensee's spent fuel storage capacity problem is the construction of a new independent spent fuel storage installation at the SONGS 2/3 site or at a location away from the site. Construction of such an additional spent fuel storage facility could provide long-term increased storage capacity for SONGS 2/3. However, it is not likely that this alternative could be implemented in a timely manner to meet the need for additional capacity for SONGS 2/3. Further, this alternative would waste resources.

1.4 Fuel Reprocessing History

Currently, spent fuel is not being reprocessed on a commercial basis in the United States. The Nuclear Fuel Services (NFS) plant at West Valley, New York, was shut down in 1972 for alterations and expansion. In September 1976, NFS informed the Commission that it was withdrawing from the nuclear fuel reprocessing business. The Allied General Nuclear Services (AGNS) proposed plant in Barnwell, South Carolina, is not licensed to operate. The General Electric Company (GE) Morris Operation (formerly Midwest Recovery Plant) in Morris, Illinois, is in a decommissioned condition.

In 1977, President Carter issued a policy statement on commercial reprocessing of spent nuclear fuel, which effectively eliminated reprocessing as part of the relatively near-term nuclear fuel cycle.

Although no plants are licensed for reprocessing fuel, the storage pools at Morris and at West Valley are licensed to store spent fuel. The storage pool at West Valley is not full, but the licensee (the current licensee is New York Energy Research and Development Authority) is presently not accepting any additional spent fuel for storage, even from those power generating facilities that had contractual arrangements with West Valley. (In fact, spent fuel is being removed from NFS and returned to its owners). On May 4, 1982, the license held by GE for spent fuel storage activities at its Morris operation was renewed for another 20 years; however, GE is committed to accept only limited quantities of additional spent fuel for storage at this facility from Cooper and San Onofre Unit 1.

2.0 RADIOACTIVE WASTES

San Onofre Units 2 and 3 contain radioactive waste treatment systems designed to collect and process the gaseous, liquid, and solid waste that might contain radioactive material. The radioactive waste treatment systems are evaluated in the Final Environmental Statement (FES) dated April 1981. There will be no change in the waste treatment systems described in the FES because of the proposed spent fuel pool (SFP) rerack.

2.1 Radioactive Material Released to the Atmosphere

With respect to releases of gaseous materials to the atmosphere, the only radioactive gas of significance that could be attributable to storing additional spent fuel assemblies for a longer period of the time is noble gas radionuclide Krypton-85 (Kr-85). Experience has demonstrated that after spent fuel has decayed 4 to 6 months, there is no longer a significant release of fission products, including Kr-85, from stored spent fuel containing cladding defects. To determine the average annual release of Kr-85, we assumed that all of the Kr-85 released from any defective fuel discharged to the SFP would be released prior to the next refueling. Enlarging the storage capacity of the SFP has no effect on the calculated average annual quantities of Kr-85 released to the atmosphere each year. There may be some small change in the calculated quantities due to a change in the fuel burnup; this is expected to be a small fraction of the calculated annual quantities. However, for the purpose of estimating potential radiation doses to the members of the public due to the proposed increased storage of spent fuel assemblies, the NRC staff conservatively assumed an additional releases of 125 Ci/year of Kr-85 (US NRC 1985).

Iodine-131 releases from spent fuel assemblies to the SFP water will not be significantly increased because of the expansion of the fuel storage capacity since the Iodine-131 inventory in the fuel will decay to negligible levels between refuelings.

Most of the tritium in the SFP water results from activation of boron and lithium in the primary coolant and this will not be affected by the proposed changes. A relatively small amount of tritium is contributed during reactor operation by fissioning of reactor fuel and subsequent diffusion of tritium

through the fuel and fuel cladding. Tritium release from the fuel essentially occurs while the fuel is hot, that is, during operations, and to a limited extent, shortly after shutdown. Thus, expanding the SFP capacity will not significantly increase the tritium activity in the SFP.

Storing additional spent fuel assemblies is not expected to increase the bulk water temperature during normal refueling above the value used in the design analysis. Therefore, it is not expected that there will be any significant change in the annual release of tritium or iodine as a result of the proposed modifications from that previously evaluated. Most airborne releases of tritium and iodine result from evaporation of reactor coolant, which contains tritium and iodine in higher concentrations than the SFP. Therefore, even if there were a higher evaporation rate from the SFP, the increase in tritium and iodine releases from the plant, as a result of the increase in stored spent fuel, would be small compared to the amount normally released from the plant and that which was previously evaluated in the FES.

2.2 Solid Radioactive Wastes

The concentration of radionuclides in the pool water is controlled by the SFP cleanup system and by decay of short-lived isotopes. The activity is highest during refueling operations when reactor coolant water is introduced into the pool, and decreases as the pool water is processed through the SFP cooling and cleanup system. The increase, if any, of radioactivity due to the proposed modification should be minor because of the capability of the cooling and cleanup system to continuously remove radioactivity in the SFP water to acceptable levels.

We do not expect any significant increase in the amount of solid waste generated from the SFP cleanup due to the proposed modification. The expected increase in total waste volume shipped from the SONGS 2/3 site would be minimal and would not have any significant additional environmental impact.

2.3 Radioactive Material Released to Receiving Waters

There should not be a significant increase in the liquid release of radionuclides from the plant as a result of the modifications. It is expected that neither the flow rate nor the radionuclide concentration of the floor cleanup water will change as a result of these modifications. The SFP demineralizer removes soluble radioactive materials from the SFP water. The amount of radioactivity on the SFP demineralizer resin may increase slightly due to the additional spent fuel in the pool, but the soluble radioactive material should be retained on the resins. After processing, the amount of radioactivity released to the environment as a result of the modification would be negligible.

3.0 RADIOLOGICAL IMPACT ASSESSMENT

The occupational exposure for the proposed modification of both fuel pools is estimated by the licensee to be 47 person-rems, which is less than the average annual total occupational dose at San Onofre 2/3. The 47 person-rem radiation dose will not affect the licensee's ability to maintain individual occupational doses within the limits of 10 CFR Part 20, and is as low as is reasonably

achievable. Normal radiation control procedures (NUREG-0800, US NRC 1981) and Regulatory Guide 8.8 (US NRC 1978) will preclude any significant occupational radiation exposures.

Thus, we conclude that the proposed storage of spent fuel in the modified SFP will not result in any significant increase in doses received by workers.

4.0 NON-RADIOLOGICAL IMPACT

The new spent fuel racks will be fabricated by Westinghouse and will be shipped by truck to the San Onofre site for installation in the pool. This is not expected to impact terrestrial resources not previously disturbed during the original construction.

The only nonradiological effluent affected by the SFP expansion is the additional waste heat rejected from the plant. The total increase in heat load rejected to the environment will be an insignificant amount compared to the current total heat load from all plant sources to the environment. No impact on aquatic biota is anticipated. Thus, the increase in rejected heat will have negligible impact on the environment.

The licensee has not proposed any change in the use or discharge of chemicals in conjunction with the expansion of the fuel pool. The proposed fuel pool expansion will not require any change to the NPDES permit.

Therefore, the staff concludes that the non-radiological environmental impacts of expanding the spent pool will be insignificant.

5.0 ACCIDENT CONSIDERATIONS

The staff, in its related Safety Evaluation to be published at a later date, has addressed both the safety and environmental aspects of a fuel handling accident, an event that bounds the potential adverse consequences of an accident attributable to operation of a spent fuel pool with high density racks. A fuel handling accident may be viewed as a "reasonably foreseeable" design basis event which the pool and its associated structures, systems, and components (including the racks) are designed and constructed to prevent. The environmental impacts of the accident were found not to be significant.

The staff has considered accidents whose consequences might exceed a fuel handling accident, that is beyond design basis events. An accident investigated by the NRC involves a structural failure of SFP resulting in loss of all contained cooling water, followed by fuel heatup and a zircaloy cladding fire. The details of this severe accident are discussed in NUREG/CR-4982, entitled "Severe Accidents in Spent Fuel Pools in Support of Generic Issue 82." Subsequently, the staff issued NUREG/CR-5176, entitled "Seismic Failure and Cask Drop Analysis of the Spent Fuel Pools at Two Representative Nuclear Power Plants." This report considers the structural integrity of the SFP and the pool response to the circumstances considered. More recently the staff issued NUREG/CR-5281, "Value/Impact Analyses of Accident Preventive and Mitigative Options for Spent Fuel Pools" and NUREG-1353, "Regulatory Analysis for the Resolution of Generic Issue 82: Beyond Design Basis Accidents in Spent Fuel

Pools." In NUREG-1353, the staff concluded, on the bases of the information presented and analyzed in the other three documents in the series, that Generic Issue 82 concerning the possibility of Zircaloy cladding fires in spent fuel pools was resolved and required no further study.

The staff believes that the probability of such an accident occurring at San Onofre 2/3 is extremely low. This belief is based upon the Commission's requirements for the design and construction of spent fuel pools and their contents (e.g., racks), and adherence to approved industry codes and standards. For example, in the San Onofre 2/3 case, the pool is an integral part of the foundation mat and walls are comprised of reinforced concrete. The spent fuel storage racks are Seismic Category I and thus required to remain functional during and after a safe shutdown earthquake. The cooling water system is extremely reliable; in the highly unlikely event of a total cooling system failure, makeup water sources are available. These are but a few of the considerations used by the staff in assessing the adequacy of the rerack.

The staff acknowledges that if the severe accidents occurred as described above, the environmental impacts could be significant; however, these events are highly unlikely and are not reasonably foreseeable, in light of the design of the spent fuel pool system and racks. Therefore, further discussion of severe accidents is not warranted, and the staff concludes that an Environmental Impact Statement need not be prepared.

6.0 SUMMARY

The Final Generic Environmental Impact Statement (FGEIS) on Handling and Storage of Spent Light Water Power Reactor Fuel concluded that the cost of the various alternatives reflects the advantage of continued generation of nuclear power with the accompanying spent fuel storage. Because of the differences in SFP designs, the FGEIS recommended environmental evaluation of SFP expansions on a case-by-case basis.

The occupational radiation dose for the proposed operation of the expanded fuel pool is estimated by the staff to be less than the total annual occupational radiation exposure for a facility of this type. The small increase in radiation in radiation dose should not affect the licensee's ability to maintain individual occupational doses at SONGS 2/3 within the limits of 10 CFR Part 20, and as low as is reasonably achievable. Furthermore, the non-radiological impacts of expanding the spent fuel pool will be insignificant, and none of the alternatives are practical or reasonable.

6.1 Alternative Use of Resources

This action does not involve the use of resources not previously considered in connection with the Nuclear Regulatory Commission's Final Environmental Statement, dated April 1981.

6.2 Agencies and Persons Consulted

The NRC staff reviewed the licensee's request. No other agencies or persons were consulted.

7.0 BASIS AND CONCLUSIONS FOR NOT PREPARING AN ENVIRONMENTAL IMPACT STATEMENT

The staff has reviewed the proposed spent fuel pool modification to SONGS 2/3 relative to the requirements set forth in 10 CFR Part 51. Based upon the environmental assessment, the staff has concluded that there are no significant radiological or non-radiological impacts associated with the proposed action and that the proposed license amendment will not have significant effect on the quality of the human environment. Therefore, the Commission has determined, pursuant to 10 CFR 51.31, not to prepare an environmental impact statement for the proposed amendment.

8.0 REFERENCES

1. Letter from SCE to NRC dated March 10, 1989.

2. Letter from SCE to NRC dated April 19, 1989.

3. Letter from SCE to NRC dated May 4, 1989.

4. Letter from SCE to NRC dated May 19, 1989.

5. Letter from SCE to NRC dated June 1, 1989.

6. Letter from SCE to NRC dated June 2, 1989.

7. Letter from SCE to NRC dated September 22, 1989.

8. Letter from SCE to NRC dated November 2, 1989.

9. Letter from SCE to NRC dated November 9, 1989.

10. Letter from SCE to NRC dated January 18, 1990.

11. Letter from SCE to NRC dated February 9, 1990.

12. Letter from SCE to NRC dated Februay 16, 1990.

13. USNRC, NUREG-0575, "Final Generic Environmental Impact Statement (FGEIS) on Handling and Storage of Spent Light Water Power Reactor Fuel," Volumes 1-3, August 1979.

14. USNRC, NUREG-0800, "Standard Review Plan," Section 13, July 1981 (formerly issued as NUREG-75/087).

15. USNRC, NUREG/CR-4982, "Severe Accidents in Spent Fuel Pools in Support of Generic Issue 82," July 1987.

16. USNRC, NUREG/CR-5176, "Seismic Failure and Cask Drop Analyses of the Spent Fuel Pools at Two Representative Nuclear Power Plants," January 1989.

17. USNRC, NUREG/CR-5281, "Value/Impact Analyses of Accident Preventive and Mitigative Options for Spent Fuel Pools," March 1989.

18. USNRC, NUREG/CR-1353, "Regulatory Analysis for the Resolution of Generic Issue 82: Beyond Design Basis Accidents in Spent Fuel Pools" April 1989.

19. USNRC, Regulatory Guide 8.8, Revision 3, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be as Low as is Reasonably Achievable," June 1978.

20. USNRC, "Environmental Assessment Related to the Construction and Operation of the Surry Dry Cask Independent Spent Fuel Storage Installation," 1985.

21. USNRC, "Environmental Assessment Related to the Construction and Operation of the H.B. Robinson Independent Spent Fuel Storage Installation," 1986.

22. USNRC, "Environmental Assessment Related to the Construction and Operation of the Oconee Nuclear Station Independent Spent Fuel Storage Installation," 1988.

Principal Contributors: Lawrence E. Kokajko and Amy E. Almond

Dated: February 27, 1990

7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION

SOUTHERN CALIFORNIA EDISON COMPANY ET AL.

SAN ONOFRE NUCLEAR GENERATING STATION

DOCKET NOS. 50-361 AND 50-362

NOTICE OF ISSUANCE OF ENVIRONMENTAL ASSESSMENT AND

FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-10 and NPF-15, issued to Southern California Edison Company et al. (the licensee), for operation of the San Onofre Nuclear Generating Station, Unit Nos. 2 and 3, located in San Diego County, California.

Identification of Proposed Action:

The amendment would consist of an addition to the Technical Specifications (TS) that would authorize the storage capacity of the spent fuel pool at 1542 spent fuel assemblies.

The amendment to the TS is responsive to the licensee's application dated April 19, 1989, as supplemented by letters dated May 4, May 19, June 1, June 2, September 22, November 12, and November 9, 1989, January 18, February 9, and February 16, 1990. The NRC staff has prepared an Environmental Assessment of the proposed action, "Environmental Assessment by the Office of Nuclear Reactor Regulation Relating to the Expansion of the Spent Fuel Pool, Facility Operating License Nos. NPF-10 and NPF-15, Southern California Edison Company et al., San Onofre Nuclear Generating Station, Unit Nos. 2 and 3, Docket Nos. 50-361 and 50-362.

9003090373 900227
PDR ADOCK 05000361
P PNU

Summary of Environmental Assessment:

The "Final Generic Environmental Impact Statement (FGEIS) on Handling and Storage of Spent Light Water Power Reactor Fuel" (NUREG-0575), Volumes 1-3 (1979), concluded that the environmental impact of interim of spent fuel was negligible and the cost of the various alternatives reflects the advantage of continued generation of nuclear power with the accompanying spent fuel storage. Because of the differences in design, the FGEIS recommended evaluating spent fuel pool expansions on a case-by-case basis.

For SONGS 2/3, the spent fuel pool reracking will not create any significant additional radiological effects or non-radiological environmental impacts beyond those assessed in the Commission's Final Environmental Statement (FES) issued in April 1981 related to the operation of SONGS 2/3 and in the safety evaluation issued February 1981.

The occupational radiation dose for the proposed operation of the expanded spent fuel pool is estimated to be less than the average annual total occupational radiation exposure for this facility.

FINDING OF NO SIGNIFICANT IMPACT

The staff has reviewed the proposed spent fuel pool expansion to the facility relative to the requirements set forth in 10 CFR Part 51. Based on this assessment, the staff concludes that there are no significant radiological or non-radiological impacts associated with the proposed action and that the issuance of the proposed amendment to the license will have no significant impact on the quality of the human environment. Therefore, pursuant to 10 CFR 51.31, no environmental impact statement needs to be prepared for this action.

For further details with respect to this action, see (1) the application for amendment dated March 10, 1989, as supplemented by letters dated April 19, May 4, May 19, June 1, June 2, September 22, November 2, and November 9, 1989, and January 18, February 9, and February 16, 1990; (2) the FGEIS on Handling and Storage of Spent Light Water Power Reactor Fuel (NUREG-0575); (3) the FES for SONGS 2/3 dated April 1981; and (4) the Environmental Assessment dated

These documents are available for public inspection at the Commission's Public Document Room, 2120 L Street, N.W., Washington, D.C. 20555 and at the General Library, University of California, P.O. Box 19557, Irvine, California 92713.

Dated at Rockville, Maryland, this 27th, day of February, 1990.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles M. Trammell

Charles M. Trammell III, Acting Director
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation