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. 153

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 153.

This amendment application consists of Proposed Change Number NPF-10-449 to Facility Operating License No. NPF-10. Proposed Change Number NPF-10-449 is a request to change Technical Specification (TS) Section 4.3 "Fuel Storage" to allow fuel assemblies having a maximum U-235 enrichment of 4.8 weight percent (w/o) to be stored in both the spent fuel racks and the new fuel racks.

Additionally, TS Section 3.7.18 "Spent Fuel Assembly Storage," Figures 3.7.18-1 "Unit 1 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," and 3.7.18-2 "Units 2 and 3 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," are being revised and relabeled. A single value is being provided as a burnup limit for unrestricted storage of Unit 1 spent fuel assemblies in Region II rack locations. Another single value is being provided as a burnup limit for storage of Unit 1 spent fuel in the Region II peripheral rack locations. Therefore, the current Figure 3.7.18-1 is being replaced with a curve applicable to Units 2 and 3 fuel assemblies and relabeled appropriately.

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Subscribed on this ______ day of __________________, 1995.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: Richard M. Rosenblum

Richard M. Rosenblum

Vice President

State of California

County of San Diego

On 12/6/95 before me, BARBARA A. MC CARTHY/NOTARY PUBLIC

personally appeared RICHARD M. ROSENBLUM, 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 Barbara A. McCarthy

BARBARA A. MC CARTHY
COMM. # 1062179
Notary Public — California
ORANGE COUNTY
My Comm. Expires MAR 31, 1999

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. 3 of the San Onofre Nuclear Generating Station	))))))	Docket No. 50-362 Amendment Application No. 137

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 137.

This amendment application consists of Proposed Change Number NPF-15-449 to Facility Operating License No. NPF-15. Proposed Change Number NPF-15-449 is a request to change Technical Specification (TS) Section 4.3 "Fuel Storage" to allow fuel assemblies having a maximum U-235 enrichment of 4.8 weight percent (w/o) to be stored in both the spent fuel racks and the new fuel racks.

Additionally, TS Section 3.7.18 "Spent Fuel Assembly Storage," Figures 3.7.18-1 "Unit 1 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," and 3.7.18-2 "Units 2 and 3 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," are being revised and relabeled. A single value is being provided as a burnup limit for unrestricted storage of Unit 1 spent fuel assemblies in Region II rack locations. Another single value is being provided as a burnup limit for storage of Unit 1 spent fuel in the Region II peripheral rack locations. Therefore, the current Figure 3.7.18-1 is being replaced with a curve applicable to Units 2 and 3 fuel assemblies and relabeled appropriately.

Subscribed on this ______ day of __________________, 1995.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: Richard M Rosenblum

Richard M. Rosenblum

Vice President

State of California

County of San Diego

On 12/6/95 before me, BARBARA A. MCCARTHY/NOTARY PUBLIC,

personally appeared RICHARD M. ROSENBLUM, 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 Barbara A. McCarthy

BARBARA A. MC CARTHY
COMM. # 1052179
Notary Public — California
ORANGE COUNTY
My Comm. Expires MAR 31, 1999

DESCRIPTION AND SAFETY ANALYSIS
OF PROPOSED CHANGE NPF-10/15-449

Proposed Change Number 449 (PCN-449) is a request to revise San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 Technical Specification (TS) Section 4.3 "Fuel Storage," Section 3.7.18 'Spent Fuel Assembly Storage," Figure 3.7.18-1 "Unit 1 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," Figure 3.7.18-2 "Units 2 and 3 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," and to renumber pages in TS Section 3.7 to support the above changes.

Technical Specification Improvement Program
(PCN-299) Technical Specifications:

Unit 2: See Attachment "A"
Unit 3: See Attachment "B"

Revised Technical Specification Improvement Program
(PCN-299) Technical Specifications:

Unit 2: See Attachment "C"
Unit 3: See Attachment "D"

SUMMARY of CHANGE

This is a request to revise TS Section 4.3 "Fuel Storage" to allow fuel assemblies having a maximum U-235 enrichment of 4.8 weight percent (w/o) to be stored in both the spent fuel racks and the new fuel racks. Evaluations performed to support this change did not consider reactor core operation. If required, additional technical specification changes may be requested to support core operation during Cycle 9 following the completion of the core reload analysis. The core reload analysis for Cycle 9 is in progress.

TS Section 3.7.18 "Spent Fuel Assembly Storage," Figures 3.7.18-1 "Unit 1 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," and 3.7.18-2 "Units 2 and 3 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," are being revised and relabeled. A single value is being provided as a burnup limit for unrestricted storage of Unit 1 spent fuel assemblies in Region II rack locations. Another single value is being provided as a burnup limit for storage of Unit 1 fuel in the Region II peripheral pool locations. Therefore, the current Figure 3.7.18-1 is being replaced with a curve applicable to Units 2 and 3 fuel assemblies and relabeled appropriately. Figure 3.7.18-2 will include revised data:

Figure 3.7.18-1 - "Minimum Burnup vs Initial Enrichment for Unrestricted Placement of SONGS 2 and 3 Fuel in Region II Racks"

Figure 3.7.18-2 - "Minimum Burnup vs Initial Enrichment for Placement of SONGS 2 and 3 Fuel in Region II Peripheral Pool Locations"

The TS 3.7.19 page is being renumbered from page 3.7-35 to 3.7-36, an editorial change.

The Bases for TS 3.7.17 and TS 3.7.18 are being changed. Attachment F is provided for information, and includes the TS Bases changes required by the increase in fuel enrichment to 4.8 w/o.

DESCRIPTION OF CHANGE

outhern California Edison Company (Edison) plans to increase the allowable maximum fuel-pin enrichment from 4.1 w/o to 4.8 w/o for the San Onofre Nuclear Generating Station Units 2 and 3. This change will be reflected in the design features section, TS 4.3 "Fuel Storage," and will allow fuel assemblies having a maximum U-235 enrichment of 4.8 w/o in both the spent fuel racks and the new fuel racks. Increasing the maximum fuel-pin enrichment from 4.1 w/o to 4.8 w/o will allow an increase of the current cycle length (from approximately 520 Effective Full Power Days (EFPD) to approximately 600 EFPD), resulting in economic benefit.

Additionally, TS 3.7.18 "Spent Fuel Assembly Storage," Figures 3.7.18-1 "Unit 1 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," and 3.7.18-2 "Units 2 and 3 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks," are being revised by this proposed change.

Figure 3.7.18-1 (Unit 1 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks) is being eliminated, and single values are to be used in its place:

18.0 GWD/T for interior storage locations
5.5 GWD/T for peripheral storage locations

Figure 3.7.18-2 (Units 2 and 3 Fuel Minimum Burnup vs Initial Enrichment for Region II Racks) will be renumbered to Figure 3.7.18-1 and relabeled. Also, Edison has recalculated the curve depicted in this Figure to increase the allowance for boraflex degradation (gaps) in the spent fuel racks.

A new Figure 3.7.18-2 will be provided. The new figure provides lower burnup criteria for storage of Unit 2 and 3 spent fuel in the Region II peripheral locations where neutron leakage is substantial.

Thus, both Figures 3.7.18-1 and 3.7.18-2 will be for Units 2 and 3 fuel assemblies and include revised data:

Figure 3.7.18-1 - "Minimum Burnup vs Initial Enrichment for Unrestricted Placement of SONGS 2 and 3 Fuel in Region II Racks"

Figure 3.7.18-2 - "Minimum Burnup vs Initial Enrichment for Placement of SONGS 2 and 3 Fuel in Region II Peripheral Pool Locations"

The changes to the new burnup curves for Units 2 and 3 fuel and the "single value" criteria for Unit 1 fuel storage are also reflected in TS 4.3, "Fuel Storage."

To avoid adding a page numbered as 3.7-32a, pages in TS Section 3.7 are being renumbered. Therefore, TS 3.7.19 is included to show the renumbering change from page 3.7-35 to 3.7-36.

Although the boron concentration remains at 1850 PPM, the Bases for TS 3.7.17 is being revised as shown in Attachment F for information. Completely misloading the Region II racks with un-irradiated fuel is considered unrealistic and the criticality analysis based on this case provides overly conservative results. The criticality analysis for the Region II racks now considers inadvertent loading of nine un-irradiated fuel assemblies in a 3x3 array as the postulated worst case scenario.

The Bases for TS 3.7.18 is being changed to reflect the enrichment increase to 4.8 w/o.

DISCUSSION

The results of criticality, radiological, and decay heat analyses show that the existing new and spent fuel storage racks, and supporting systems and components have been adequately designed to accommodate the storage and handling of San Onofre Units 2 and 3 fuel with a maximum fuel-pin enrichment of 4.8 w/o. For postulated accident conditions in the Spent Fuel Pool (SFP), a minimum concentration of 1850 PPM (1800 PPM + 50 PPM uncertainty) soluble boron is required. The criticality analyses also show that SONGS Unit 1 fuel assemblies can continue to be safely stored in the SONGS Units 2 and 3 SFPs.

A detailed report entitled "EVALUATION OF THE HANDLING AND STORAGE OF 4.8 W/O ENRICHED FUEL" is provided in Attachment E. This report is summarized as follows:

FUEL ASSEMBLY DESCRIPTIONS

Two fuel assembly designs are currently stored in the Units 2 and 3 spent fuel storage racks:

(1) Asea Brown Boveri/Combustion Engineering (ABB/CE), Zircaloy-clad, 16x16 fuel assemblies

(2) Westinghouse, Stainless-steel-clad, 14x14 Unit 1 fuel assemblies

Table 1 provides the characteristics of the two assembly types.

It is proposed to increase the maximum fuel-pin enrichment of the ABB/CE new fuel assemblies to 4.8 w/o.

NEW FUEL STORAGE RACK DESCRIPTION

The new fuel storage racks provide for safe storage of un-irradiated fuel assemblies in a geometry which prevents criticality under all normal and accident conditions. The new fuel storage racks are designed to protect the stored assemblies against possible impact loading due to handling of neighbor assemblies, an' to guide the assemblies into their locations in the new fuel storage racks.

The new fuel storage racks provide dry storage for 80 fuel assemblies at a nominal centerline spacing of 29 inches. The racks are fabricated from stainless steel.

SPENT FUEL STORAGE RACK DESCRIPTION

The spent fuel storage racks provide for storage of new and spent fuel assemblies in appropriate regions of the SFP, while maintaining a coolable geometry, preventing criticality, and protecting the fuel assemblies from excess mechanical or thermal loadings. Each unit is licensed to store its own fuel and the resulting byproduct material from that fuel. Additionally, SONGS 1 fuel, miscellaneous storage items, and the failed rod storage baskets may be stored in the SONGS 2 and SONGS 3 racks.

Fuel is stored in two regions within each pool:

(1) Region I (312 locations)
(2) Region II (1230 locations)

Region I

Region I consists of two high density fuel racks, each with 156 cells in a 12x13 matrix. The nominal dimensions of each rack are 125.5 inches by 135.9 inches. The cells within a rack are interconnected by grid assemblies and stiffener clips to form an integral structure. Region I is typically used to store un-irradiated fuel, and fuel which has not achieved the minimum required burnup for unrestricted storage in Region II. Region I can hold a full core off load (217 fuel assemblies), plus 95 additional assemblies.

Region II

Region II (1230 locations) has six high density fuel racks, four with 14x15 cells and two with 13x15 cells The nominal dimensions of the 14x15 racks are 124.82 inches by 133.67 inches; the nominal dimensions of the 13x15 rack are 115.97 inches by 133.67 inches. Region II is designed to accommodate irradiated fuel which meets a predetermined burnup. Placement of fuel in Region II racks is restricted by burnup and enrichment limits, or by prescribed storage patterns which are administratively controlled by Licensee Controlled Specifications.

Table 2 provides a summary listing of the data describing the Region I and Region II spent fuel storage racks.

CRITICALITY ANALYSES

The SONGS 2 and 3 new fuel storage racks, spent fuel storage racks, and fuel handling equipment can safely accommodate unshimmed (no burnable poison rods - including IFBA, Gd, or Er), new, 4.8 w/o enriched fuel. The neutron multiplication factor (k-eff) is less than 0.95 for all normal and postulated accident conditions. A minimum SFP boron concentration of 1850 PPM (1800 PPM + 50 PPM uncertainty) is required for accident conditions.

New Fuel Storage Racks:

The acceptance criteria for criticality for the new fuel storage racks can be found in NUREG-0800, 'Standard Review Plan', and the NRC's 'OT Position For Review And Acceptance Of Spent Fuel Storage And Handling Applications.'

> For new fuel storage racks, the neutron multiplication factor (k-eff) shall be less than about 0.95 when fully loaded and flooded with potential moderators such as unborated water fire extinguishant aerosols. K-eff will not exceed 0.98 with fuel of the highest anticipated reactivity in place assuming optimum moderation.

Edison's analyses show that under all normal and postulated accident conditions, k-eff is less than 0.95 when the new fuel storage racks are fully loaded with new, unshimmed 4.8 w/o fuel assemblies.

Under normal conditions, k-eff is less than 0.72 for dry storage in the new fuel storage racks. K-eff is 0.856 at the optimum water density of 0.045 gms/cc. K-eff is 0.904 when the racks are completely flooded with unborated water.

The proposed design of the higher enriched fuel will result in a slight weight increase. However, this weight increase does not impact the evaluation of the new fuel racks because the weight considered in the analysis was conservative and bounds the weight of the higher enriched fuel.

Spent Fuel Storage Racks:

The criticality acceptance criteria for the spent fuel storage racks can be found in NUREG-0800, 'Standard Review Plan', and the NRC's 'OT Position For Review And Acceptance Of Spent Fuel Storage And Handling Applications.'

> For spent fuel storage racks, the neutron multiplication factor (k-eff) shall be less than or equal to 0.95, including all uncertainties, under all normal and postulated accident conditions.

The final k-eff for the spent fuel storage racks is calculated taking the following into consideration:

(1) Axial Burnup Effects
(2) Neutron absorbing material (Boraflex)
(3) Boraflex Gaps
(4) Manufacturing Tolerances

(5) Eccentric Loading
(6) Calculational Biases And Uncertainties

The accidents considered for the spent fuel storage racks include:

(1) Fuel Assembly Dropped Horizontally On Top Of The Racks
(2) Fuel Assembly Dropped Vertically Into A Storage Location Already Containing A Fuel Assembly
(3) Fuel Assembly Dropped To The SFP Floor
(4) Loss Of Cooling Systems
(5) Fuel Misloading Accidents
(6) Heavy Load Drops
(7) Seismic Events
(8) Boron Dilution

The proposed design of the higher enriched fuel will result in a slight weight increase. However, the seismic event is bounded by the analyses performed for the rerack project, submitted to the NRC on February 16, 1990.

A boron dilution accident is not analyzed since the spent fuel storage racks have k-eff of 0.941 for Region I and 0.948 for Region II at a soluble boron concentration of 0 PPM.

For accident conditions, the double contingency principle of ANSI/ANS-8.1-1983 (formerly ANSI N16.1-1975) is applied. This principle states that one is not required to assume two unlikely, independent, concurrent events to ensure protection against a criticality accident. Therefore, for those accidents during which k-eff increases, the presence of soluble boron may be credited, since the absence of boron would be a second unlikely event.

Edison's analyses show that under all normal and postulated accident conditions, k-eff is less than 0.95 when the Region I racks are fully loaded with new, unshimmed, 4.8 w/o fuel assemblies.

Edison's analyses show that under all normal and postulated accident conditions, k-eff is less than 0.95 when the Region II racks are loaded with SONGS 1, 2, and 3 fuel assemblies which meet the burnup criteria of proposed TS 3.7.18 or are stored in compliance with the Licensee Controlled Specifications.

Evaluations of postulated accidents were performed to meet the requirements of the OT Position. These evaluations have shown that k-eff remains below 0.95 when credit is taken for the presence of boron and administrative controls.

BORAFLEX EROSION OR DISSOLUTION

Recently, elevated silica concentrations have been observed in SFPs of numerous plants. SONGS has also experienced elevated silica concentrations in the SFP. This elevated concentration originates from erosion of the boraflex panels.

Calculations have been performed to investigate the criticality consequences due to the loss of Boraflex thickness in the SONGS 2 and 3 spent fuel storage racks. Up to a 50% decrease in Boraflex thickness has been evaluated.

Conservatively assuming un-irradiated 5.1 w/o fuel, and a 6 inch random gap in every boraflex panel, about 20% of the boraflex thickness can be lost in Region I before k-eff reaches 0.95 at a soluble boron concentration of 0 PPM. For Region II, about 7% of the Boraflex can be lost before k-eff reaches 0.95 at a soluble boron concentration of 0 PPM. The current SFP water silica level indicates that the loss of boraflex has resulted in negligible thickness decrease.

To date, four boraflex surveillance coupons from each unit have been tested. The first coupon was removed during the Cycle 6 refueling outage; the second coupon was removed during the Cycle 7 refueling outage; the third and fourth coupons were removed during the Cycle 8 refueling outage. The results of the coupon tests and inspections show that the boraflex is performing within the EPRI acceptance criteria for the coupon Boron-10 density, thickness, length, and width.

Edison will continue to monitor the boraflex integrity through the boraflex coupon surveillance program; silica levels in the pool will continue to be monitored; and, industry (EPRI) experience with boraflex erosion will continue to be closely followed.

DECAY HEAT

The Updated Final Safety Analysis Report (UFSAR) analysis performed to calculate the maximum fuel cladding temperature and SFP cooling system design requirements includes assumptions which bound the use of 4.8 w/o enriched fuel assemblies. For decay heat analyses a conservative cycle length of 635 EFPD was assumed. In addition to increasing the enrichment, the proposed fuel management plans decrease the reload batch size from 108 assemblies to 104 assemblies or less. As a result, the calculated SFP heat loads assuming an enrichment of 4.8 w/o are less than the current analyses of record in the UFSAR.

RADIOLOGICAL EVALUATION

Edison's analyses show there is no significant impact on waste generation, effluents, personnel exposure during fuel handling, or the radiological consequences of fuel handling or pool boiling accidents from increasing the enrichment from 4.1 w/o to 4.8 w/o.

The NRC has reviewed the anticipated widespread use of extended burnup fuel in commercial Light Water Reactors and has concluded (Federal Register 53 FR 6040, February 29, 1988) that there are no significant adverse radiological or non-radiological impacts associated with the use of extended fuel burnup and/or increased enrichment. Moreover, the NRC has issued NUREG/CR-5009, "Assessment of the Use of Extended Burn-up Fuel in Light Water Reactors," which found no significant impact for fuel up to 5 w/o and burnup to 60 GWD/T.

The current UFSAR source term for design basis fuel handling accidents assumes a maximum fuel assembly burnup of 60,000 MWD/T. Increasing the enrichment to 4.8 w/o does not push discharge burnups above 60,000 MWD/T. Therefore, the current UFSAR radiological consequences analyses for fuel handling accidents bound the proposed enrichment increase.

SAFETY ANALYSIS

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   There is no increase in the probability of an accident because the physical characteristics of a fuel assembly are not changed when fuel enrichment is increased. No changes will be made to any safety related equipment or systems. Fuel assembly movement will continue to be controlled by approved fuel handling procedures.

   Fuel cycle designs will continue to be analyzed with Nuclear Regulatory Commission (NRC)-approved codes and methods to ensure the design bases for San Onofre Units 2 and 3 are satisfied.

   The double contingency principle of American National Standards Institute/American Nuclear Society (ANSI/ANS) Standard 8.1-1983 can be applied to any postulated accident in the Spent Fuel Pool (SFP) which could cause reactivity to increase. In conjunction with administrative controls for heavy loads and impact zones, a boron concentration of 1850 parts per million (PPM) (the current Technical Specification (TS) limit) is sufficient to maintain k-eff less than or equal to 0.95 for all normal and postulated accident conditions.

   Regarding the new fuel storage racks, there is no postulated accident which could cause reactivity to increase above 0.95 for all moderator densities from 0.0 to 1.0 grams/cubic centimeter (gms/cc).

   The radiological consequence analyses performed in the Updated Final Safety Analysis Report (UFSAR) include the development of source terms which bound discharge fuel burnups to 60,000 megawatt days per ton (MWD/T). Increasing the San Onofre Units 2 and 3 enrichment to 4.8 weight percent (w/o) does not result in discharge fuel assembly burnups greater than 60,000 MWD/T. Thus, the consequences of the fuel handling accident are unchanged from the current UFSAR bases.

Therefore, this proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   No.

   The proposed changes do not involve any physical changes to the plant or any changes to the method in which the plant is operated. They do not affect the performance or qualification of safety related equipment. Fuel handling accidents were previously considered. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

   No.

   For the SFP, the NRC acceptance criteria is k-eff less than or equal to 0.95 under all normal and accident conditions and including uncertainties. For the new fuel storage racks, k-eff must remain less than 0.95 if completely flooded with unborated water, and must remain below 0.98 in an optimum moderation event. Analyses have been performed which demonstrate that these acceptance criteria will continue to be met when the enrichment is increased to 4.8 w/o.

   The current UFSAR design bases SFP decay heat loads bound the proposed enrichment increase due to the reduced fuel batch size.

   Radiological effects of fuel handling accidents are unchanged by this enrichment increase.

   The proposed design of the higher enriched fuel will result in a slight weight increase. However, the seismic event is bounded by the analyses performed for the rerack project.

   Therefore, there will not be a significant reduction in a margin of safety.

Safety and Significant Hazards Determination

Based on the above Safety Analysis, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10 CFR 50.92; and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change. Moreover, because this action does not involve a significant hazards consideration, it will also not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.

Table 1
FUEL ASSEMBLY DATA FOR SONGS 1, 2, AND 3

	SONGS 1	SONGS 2&3
Maximum Fuel-Pin Enrichment (w/o)	4.0	4.8*
Cladding Type	SS	Zr
Rod Array	14x14	16x16
Fuel Rod Pitch (in.)**	0.556	0.506
Number of Rods Per Assembly	180	236
Fuel Rod Outer Diameter (in.)	0.422	0.382
Fuel Pellet Diameter (in.)	0.3835	0.325***
Active Fuel Length (in.)	120.0	150.0
Cladding Thickness (in.)	0.0165	0.025
Number of Guide Tubes	16	5
Guide Tube Outer Diameter (in.)	0.535	0.980
Guide Tube Inner Diameter (in.)	0.511	0.900
Guide Tube Material	SS	Zr

* The current maximum enrichment is 4.1 w/o. It is proposed to increase the maximum enrichment to 4.8 w/o.

** Fuel rod pitch is the spacing between fuel rods measured as the distance from centerline to centerline of the rod. All three fuel assembly types are square pitch arrays.

*** In the future, the fuel pellet diameter may increase to 0.3255 inches. There will be no impact on criticality because the present analyses assume a fuel stack height density which bounds the small amount of additional fuel which would result from the increase in fuel pellet diameter.

Table 2

SPENT FUEL RACK DATA
(Each Unit)

	Region I	Region II
Number of Storage Locations	312	1230
Number of Rack Arrays	Two 12x13	Four 14x15 Two 13x15
Center-to-Center Spacing (inches)	10.40	8.85
Cell Inside Width (inches)	8.64	8.63
Type of Fuel	SONGS 2 and 3 16x16 and/or SONGS 1 14x14	SONGS 2 and 3 16x16 and/or SONGS 1 14x14
Rack Assembly Outline Dimensions (inches)	126 x 136 x 198.5	125 x 134 x 198.5 (14 x 15) 116 x 134 x 198.5 (13 x 15)