PDR -Do not Return 70-2884

LILCO

LONG ISLAND LIGHTING COMPANY

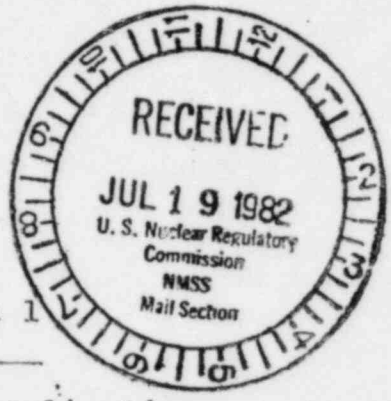
SHOREHAM NUCLEAR POWER STATION

P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

July 16, 1982

SNRC-731

Mr. John G. Davis, Director
Office of Nuclear Material Safety and
Safeguards (NMSS)
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



NRC Material License SNM-1857
Shoreham Nuclear Power Station - Unit 1
Docket Nos. 70-2884 (and 50-322)

Reference: (1) Letter SNRC-322 dated 9/25/78, Application for License to Receive, Possess, and Store Unirradiated Fuel Assemblies

(2) Letter SNRC-699 dated 4/30/82

Dear Mr. Davis:

Enclosed are twelve (12) copies of revised pages to Shoreham's "Application for a License to Receive, Possess and Store Unirradiated Fuel Assemblies", which had originally been submitted via the Reference 1 letter and amended via the Reference 2 letter.

These pages have been revised primarily to account for the contingency of maintaining the new fuel on the delivery trucks on site while unloading operations progress. This is required based on the results of negotiations between the Long Island Lighting Company and Suffolk County.

Security procedures are being revised as appropriate and will be provided to Region I for approval. In addition, necessary changes to the security plan will be sent to NMSS. These two items are being handled separately as they constitute safeguards information.

FEE EXEMPT
amend.
(Ltr to) 20957

We request your expeditious review of this revised application. Should you have any questions or require additional information, please contact this office.

Very truly yours,

J. L. Smith
Manager, Special Projects
Shoreham Nuclear Power Station

RWG:mp

Enclosures

cc: J. Higgins
All parties
N. Ketzlach - NMSS

1.1.4 Isotopic Content

There is no Plutonium, U233, depleted uranium, or Thorium in any of the above-described 560 fuel assemblies. There is a maximum of 1964 Kg's of U235, and a maximum total weight of Uranium of 103,402 Kg. Gadolinum oxide is axially distributed in each of the 2.186 WT% U235 and 1.758 WT% U235 fuel assemblies. The fuel portion of the low enrichment (0.711 WT%) fuel assemblies is composed entirely of natural uranium.

1.2 Storage Conditions

1.2.1 Locations

Scale drawings of fuel storage and handling areas are provided in Figures 1.2.1-1, 1.2.1-2, 1.2.1-3, and 1.2.1-4.

Detailed portions shown in Figures 1.2.1-5 and 1.2.1-6, for initial receipt of new fuel shipments in the interim period between delivery of the fuel to the Site and movement to the Reactor Building. The new fuel assemblies may either be stored on or be offloaded from the delivery trucks and temporarily stored in their shipping containers until transfer activities to the Reactor Building for uncrating, inspection, channeling, and storage within the New Fuel Storage Vault and the Spent Fuel Storage Pool.

1.2.2 Activities in Adjacent Areas

During the time that the new fuel will be stored onsite, activities in adjacent areas will primarily consist of final preparations and testing. If the interim storage area within the 138KV Substation is utilized for temporary storage of new fuel, any construction activities in adjacent areas will be completed prior to receipt of new fuel on site. Routine switching operations and substation test procedures may be performed from time to time. These activities will have no effect on the safety of the stored fuel. If the new fuel is stored on the West Plant Road, any activities in adjacent areas will be limited in scope so as not to affect the safety of the fuel.

1.2.3 Storage Facilities and Equipment

The New Fuel Storage Vault and the Spent Fuel Pool, as illustrated in Figures 1.2.1-2 and 1.2.1-3, are integral structures within the Reactor Building. The fuel storage facilities and handling equipment are designated Seismic Category I and are protected against the most severe environmental phenomena which have been postulated to occur at this site.

keys controlled by the Site Security Supervisor. Admistrative controls and security measures will be established to prevent unauthorized personnel from gaining access to the refueling elevation via the service elevator.

A watchman will be posted for access control during those times when work is performed on the refueling level. During other times, surveillance will be provided by a watchman randomly patrolling the refueling level.

1.2.5.2

1.2.5.3 Protection of Special Nuclear Material (SNM) Awaiting Unloading from Delivery Trucks

In the event that new fuel must remain on delivery trucks while awaiting unloading and movement to El. 175 of the Reactor Building, security measures will be taken to safeguard the material. These measures are set forth in Shoreham's Security Plan for the protection of SNM and the Plan's Implementing Procedures.

1.3 Physical Protection

Because the enrichment of U235 in the new fuel assemblies is less than 20 percent, see Section 1.1.3 above, the Applicant is exempt from the security requirements set out in 10CFR Sections 73.30 through 73.36, 73.60, 73.70 and 73.72. See 10CFR Sections 73.1(b), 73.6; Regulatory Guide 3.15, paragraph 1.3.

1.4 Transfer of Special Nuclear Materials

Transportation of the fuel assemblies from the fabrication location at Wilmington, North Carolina, to the reactor site at Shoreham will be the responsibility of the fuel fabricator,

General Electric Company, 175 Curtner Avenue, San Jose, California.

The fuel assemblies will be delivered in double-walled shipping containers which are the property of the fuel fabricator. The inner, or metal shipping container (MSC) is capable of safely transporting and storing two new fuel assemblies. The outer, or wooden shipping container (WSC) is used as a protective cover for the MSC that contains the new fuel assemblies. The new fuel assemblies will remain in both containers until they are moved to the Reactor Building. The metal shipping containers may be removed from the wooden shipping containers during transfer from an interim storage area to the Reactor Building. General Electric Company has been licensed by the U.S. Nuclear Regulatory Commission to package and transport fuel assemblies in such shipping containers (License SNM-1097, Docket 70-1113).

The MSC, with the new fuel inside, will be hoisted to the refueling level in a new fuel transfer basket via the Polar Crane. There the new fuel assemblies will be individually removed from the shipping containers, inspected, channeled, and placed in one of the fuel storage areas.

1.5 Financial Protection and Indemnity

In accordance with Section 140.13 of 10CFR Part 140, the Applicant has purchased nuclear energy liability insurance in the amount of $1,000,000. Eight certified copies of this insurance policy have been forwarded to the Nuclear Regulatory Commission. In addition, the Applicant will enter into an indemnification agreement with the Commission whereby $500,000,000 Government Indemnity will be provided in excess of the $1,000,000. The financial protection will continue in effect until the Operating License is obtained. At that time, the required additional third party nuclear liability insurance will be provided.

2.0 HEALTH AND SAFETY

2.1 Radiation Control

This Section provides information regarding radiation safety at Shoreham.

2.1.1 Training and Experience

The Health Physics Engineer will have responsibility for all aspects of radiation safety at Shoreham. He

will ensure that the receiving of radioactive material is performed in accordance with approved station procedures. The training and experience of the Health Physics Engineer is detailed in the FSAR, Section 13A.

2.1.2 Procedures and Equipment for Checking Contamination

The Health Physics Engineer shall be notified when a shipment of new fuel arrives on site. Qualified Health Physics personnel shall perform complete radiation and contamination surveys of the outside of the transport vehicle to ensure that the radiation levels are within acceptable limits. The results of these surveys shall be recorded. If all survey data is within limits, the vehicle will be moved to a designated receiving area to proceed with unloading. If survey data is above established limits, appropriate actions as defined in the station procedures for receiving radioactive material will be followed.

Upon removal from the shipping containers, each fuel assembly shall be surveyed for alpha and beta-gamma removable contamination. If there is a positive indication of radioactive contamination, the surface of the assembly shall be wiped thoroughly with a lintfree cloth, and rechecked until free of contamination.

2.1.3 Calibration and Testing of Instrumentation

Health Physics personnel will routinely perform surveys in the fuel storage area. Radiation surveys shall be performed using a portable ionization chamber instrument. Contamination surveys will consist of smears counted on either an alpha scintillation counter and/or a gas flow proportional counter. This equipment shall be routinely calibrated in accordance with approved Shoreham procedures. Station procedures covering personnel monitoring will ensure compliance with 10CFR20.

2.2 Nuclear Criticality Safety

2.2.1 Shipping Containers

The new fuel assemblies will arrive at the site in special shipping containers as described in Section 1.4 above. Upon receipt, these shipments will either be directed to (1) the Reactor Building for uncrating, inspection, channeling, and storage in the New Fuel Storage Vault or the Spent Fuel Storage Pool, or (2) interim storage areas

either within the 138KV Substation or on the West Plant Road. These storage areas are described in Section 1.2 of this Application.

If the new fuel is to be temporarily stored in an interim storage area, the fuel assemblies will remain in their original shipping containers until such time that they are transferred to the Reactor Building. These containers, with their contents, are designated "RA Series" packages, and they meet NRC requirements for shipping and storing new fuel assemblies. General Electric Company License SNH-1097, Docket 70-1113.

2.2.2 Fuel Storage and Criticality Analysis

After the new fuel assemblies are inspected and channeled, they are stored in either the New Fuel Storage Vault or the Spent Fuel Pool. A detailed description of the fuel storage and handling equipment, as well as the criticality analysis of the fuel racks is contained in the Shoreham FSAR, CHapter 9 and Appendix 9A, Volume 11.

2.2.3 Criticality Control

For the New Fuel Storage Vault, the calculations of k-eff are based upon generic arrangements of the fuel array. Therefore, criticality does not depend upon the presence of neutron absorbing materials except in cases of optimum moderation. Neutron absorbing curtains are placed between the rows of fuel assemblies to preclude accidental criticality in the unlikely event of optimum moderation. The arrangement of fuel assemblies in th fuel storage racks results in k-eff below 0.95 in the dry condition, or completely flooded with water which has a density of 1g/cc. In an abnormal condition, if the new fuel array were flooded with low equivalent water density material (optimum moderation), k-eff would not exceed 0.98.

The Spent Fuel Pool fuel racks are also designed such that fully loaded fuel racks maintain k-eff below 0.95, assuming they are fully flooded with nonborated water, the fuel is new with an enrichment of 3.1 weight percent U235 or less, and the geometric array is the worst possible considering mechanical tolerances and abnormal conditions.