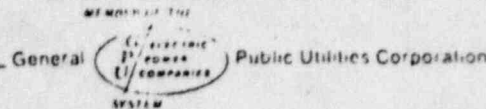


Jersey Central Power & Light Company



MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960



September 19, 1975

Mr. Karl R. Goller, Assistant Director
for Operating Reactors
Division of Reactor Licensing
United States Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Goller:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Spent Fuel Pool Modification Plan

Jersey Central Power & Light Company plans to increase the storage capacity of the spent fuel storage pool at the Oyster Creek Nuclear Generating Station to ameliorate a possible shortage of spent fuel storage capacity. This will be done by replacing the present storage racks with a compacted fuel rack design. The design concept and criteria for this modification are attached.

This design is in progress, and its scheduled completion date is the end of November, 1975. Preparation of information for submittal to the NRC for licensing approval for this modification has concomitantly been underway. On September 16, 1975, the NRC gave notice of its decision to prepare a generic environmental impact statement on the handling and storage of spent light water power reactor fuels. The Commission also stated that individual licensing review would continue "subject to certain conditions", and that any individual licensing action intended to ameliorate a possible shortage of spent fuel storage would be accompanied by an environmental impact statement or impact appraisal. This action has raised some questions for us about the requirements necessary for prompt licensing action by the NRC for our modification. We, therefore, solicit your comments on the attached design concept and on any other information needed for expeditious licensing action by you.

Our current schedule is for installation of some of the compacted fuel storage racks during the 1976 refueling outage (i.e., beginning in April, 1976) and the remainder during the 1977 outage (April, 1977). To meet

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Mr. Goller

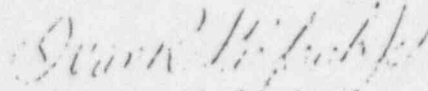
-2-

September 19, 1975

this schedule, your comments are needed by October 24, 1975. Should you have any questions, please contact Mr. T. J. Madden of our Generation Department staff.

Thank you for your cooperation.

Very truly yours,



Ivan R. Finrock, Jr.
Vice President

es

OYSTER CREEK NUCLEAR GENERATING STATION
SPENT FUEL POOL MODIFICATION PLAN

The present spent fuel storage capacity at the Oyster Creek Nuclear Generating Station is 840 fuel assemblies. The planned increase, which is discussed below, will provide for a total storage of 1,540 to 1,760 assemblies.

I. New Spent Fuel Rack Design

The BWR compacted spent fuel rack which Jersey Central Power & Light Company plans to use at the Oyster Creek Nuclear Generating Station to increase spent fuel storage capacity is a modular box structure with spent fuel arranged in slabs (rows of 4 elements each). The gap between slabs is determined by the material placed in the gap and its arrangement.

Using an all stainless steel construction with no additional neutron absorber added, a 28-cell spent fuel rack can be provided. This design will replace the existing 20-element rack presently installed in the spent fuel pool. The stainless steel boxes or "flux traps" between rows of fuel elements are open at both ends allowing them to fill with fuel pool water. The stainless steel and water provide the necessary neutron absorption. Arrangement for this design is shown in Figure 1. If all existing spent fuel racks and control rod racks are replaced by the 28-cell rack, an additional 700 spent fuel storage spaces are gained.

If additional spent fuel storage capacity is required, an alternate design is also being considered. The alternate design utilizes the same fuel arrangement as the previously discussed design; however, the rack structural material will be aluminum and the removable neutron absorber boxes will be filled with a slab of borated polyethylene. This design allows a closer spacing of spent fuel rows, increasing storage capacity of the rack to 32 cells. Arrangement of the poison fuel rack is shown in Figure 2. This rack design would yield 920 additional storage spaces if all existing spent fuel racks and control rod racks are replaced by the new rack designs.

It is Jersey Central Power & Light Company's intention to use either of the above designs or a combination of both to assure the required spent fuel storage capacity and also to allow unloading of a full reactor core. The racks will be mounted on a support base which will be bolted to the fuel pool floor using the existing tie down bolts. Tentatively, each support base will accommodate five compacted spent fuel racks; however, should the need arise, the support base could be expanded to allow additional racks to be mounted. This would yield a potential to store spent fuel in all available areas in the pool, e.g., "wall-to-wall".

The racks will be structurally designed to meet seismic Category I requirements as defined in NRC Regulatory Guide 1.29, August 1973. In addition, the rack design will meet the requirements of ANSI Standard N16.1-1969, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors"; Safety Guide 13, "Fuel Storage Facility Design Basis";

OYSTER CREEK NUCLEAR GENERATING STATION
SPENT FUEL POOL MODIFICATION PLAN
PAGE 2

Safety Guide 25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors"; and the applicable parts of ANSI N18.2.

Completion of the fuel rack design, including associated procurement specifications, is scheduled for the end of November, 1975. It is anticipated that four to six new spent fuel racks can be fabricated by the spring of 1976 in an effort to support the next Oyster Creek refueling outage.

A preliminary structural review of the Oyster Creek spent fuel pool indicates that there is sufficient margin in the design to adequately support the additional spent fuel capacity.

II. Criticality Design

The primary computer programs which are utilized in the criticality analysis model are the LEOPARD* and PDQ-7** programs. These programs were derived from or developed under the Naval Reactors Program and are extensively used in the industry for the design and analysis of light water reactors. The specific nuclear analysis model used has also been independently tested and benchmarked against a series of critical experiments which span the range of design parameters characteristic of the fuel bundles and storage racks. The design will meet the applicable parts of ANSI N18.2.

III. Spent Fuel Pool Cooling Capacity

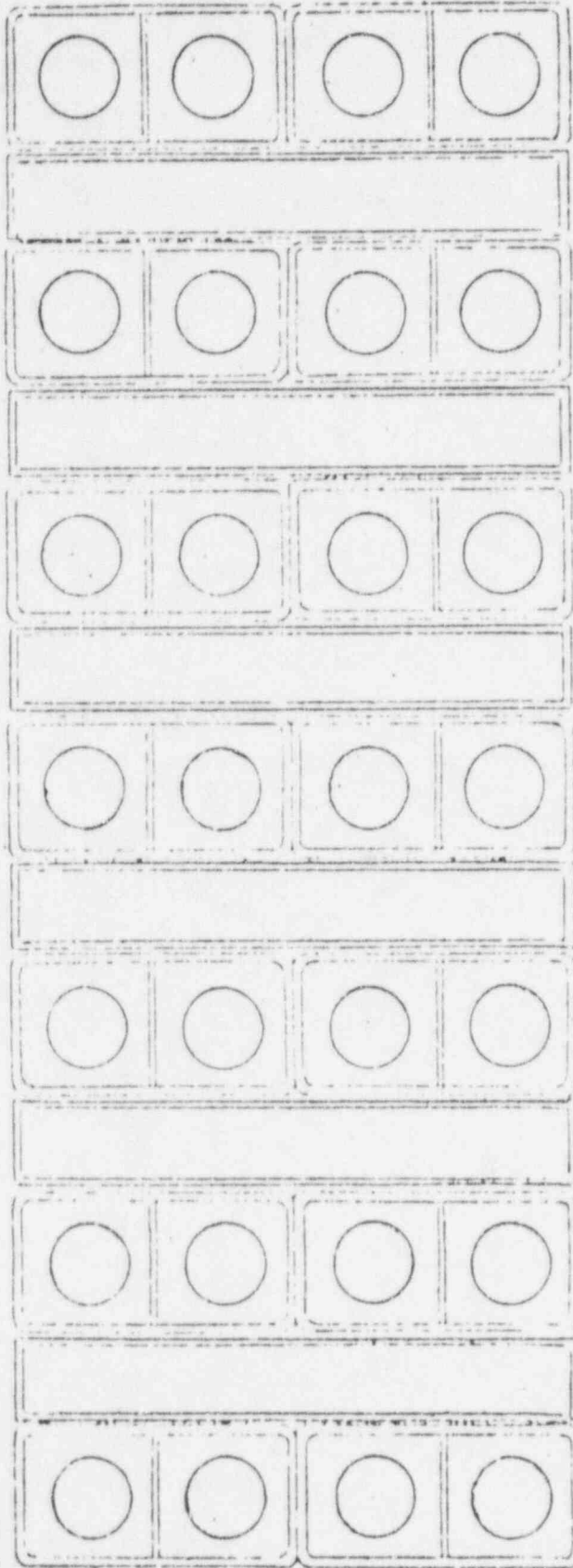
Analyses are presently underway to insure that the cooling capacity of the spent fuel pool is adequate for the heat loads expected for the modified design.

*R. F. Bairy, "LEOPARD -- A Spectrum Dependent Non-Spatial Depletion Code for IBM-7094", WCAP-3269-26, Sept., 1963.

**W. R. Cadwell, "PDQ-7 -- Reference Manual," WAPD-TM-678, January, 1967.

66.5"

13.10"



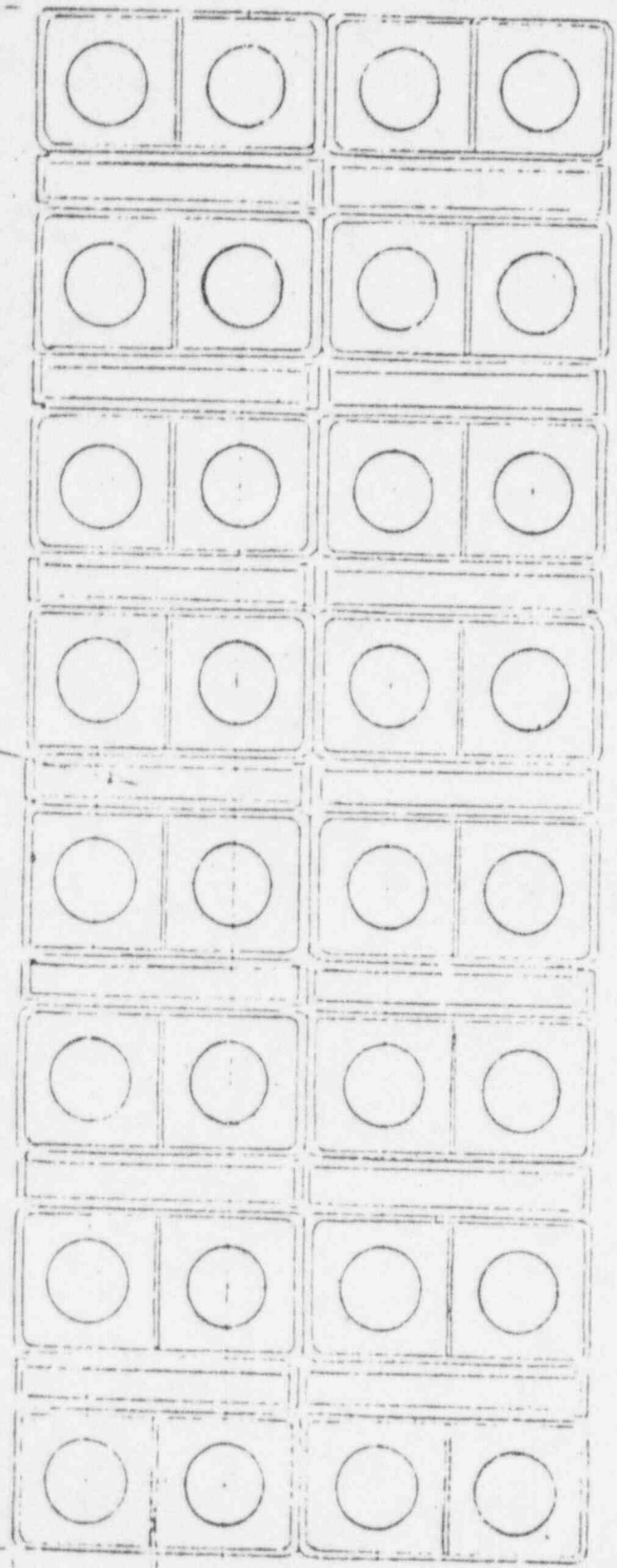
PLAIN - NO POISON

ALL STAINLESS STEEL
28 SPENT FUEL CELLS

FIGURE 1

66.5"

POISON (TYF.)



21.980"

PLAN-POISONED

ALUMINUM WITH BORATED

POLYETHYLENE POISON

32 SPENT FUEL CELLS

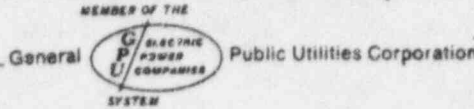
FIGURE 2

V-2BR

Jersey Central Power & Light Company



MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 201-539-6111



September 19, 1975

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Mr. Goller

-2-

September 19, 1975

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Thank you for your cooperation.

Very truly yours,

Ivan R. Finfrock, Jr.
Ivan R. Finfrock, Jr.
Vice President

CS

RECEIVED
U.S. DEPT. OF ENERGY
OCT 1 1975

KING OF PRUSSIA, PA.