Mr. Michael Roche
Vice President and Director
GPU Nuclear, Inc.
Oyster Creek Nuclear Generating Station
P.O. Box 388
Forked River, NJ 08731

November 22, 1999

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON YOUR PROPOSED LICENSE AMENDMENT CONCERNING THE SPENT FUEL POOL EXPANSION (TAC NO. MA5965)

Dear Mr. Roche:

By letter dated June 18, 1999, you proposed an amendment that would modify the Oyster Creek Nuclear Generating Station Technical Specifications to reflect the installation of additional spent fuel pool storage racks.

In a telephone conference on November 2, 1999, we clarified the attached questions and discussed the schedule for responding with your staff. The NRC staff needs additional information to complete its review (Enclosure). Please respond to this request within 45 days of the date of this letter.

If you have any questions regarding this correspondence, please contact me at (301) 415-1261.

Sincerely,

ORIGINAL SIGNED BY:

Helen N. Pastis, Sr. Project Manager, Section I
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-219

Enclosure: Request for Additional Information

cc w/encl: See next page

DISTRIBUTION:

File Center	ACRS	OGC	P. Eselgroth, RI
PDI-1 R/F	PUBLIC	L. Berry	
H. Pastis	S. Little	S. Peterson	

DOCUMENT NAME: G:\PDI-1\OYSTERCREEK\RAI25965.WPD

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	PM:PDI-1	E	LA:PDI-1		SC:PDI-1					
NAME	HPastis/rsl		SLittle		SPeterson					
DATE	11/15/99		11/12/99		11/18/99					

Official Record Copy

DF01

PDR ADOCK

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 22, 1999

Mr. Michael Roche
Vice President and Director
GPU Nuclear, Inc.
Oyster Creek Nuclear Generating Station
P.O. Box 388
Forked River, NJ 08731

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON YOUR PROPOSED LICENSE AMENDMENT CONCERNING THE SPENT FUEL POOL EXPANSION (TAC NO. MA5965)

Dear Mr. Roche:

By letter dated June 18, 1999, you proposed an amendment that would modify the Oyster Creek Nuclear Generating Station Technical Specifications to reflect the installation of additional spent fuel pool storage racks.

In a telephone conference on November 2, 1999, we clarified the attached questions and discussed the schedule for responding with your staff. The NRC staff needs additional information to complete its review (Enclosure). Please respond to this request within 45 days of the date of this letter.

If you have any questions regarding this correspondence, please contact me at (301) 415-1261.

Sincerely,

Helen N. Pastis

Helen N. Pastis, Sr. Project Manager, Section I
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-219

Enclosure: Request for Additional Information

cc w/encl: See next page

M. Roche
GPU Nuclear, Inc.

cc:

Mr. David Lewis
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW
Washington, DC 20037

Manager Licensing & Vendor Audits
GPU Nuclear, Inc.
1 Upper Pond Road
Parsippany, NJ 07054

Manager Nuclear Safety & Licensing
Oyster Creek Nuclear Generating Station
Mail Stop OCAB2
P. O. Box 388
Forked River, NJ 08731

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Mayor
Lacey Township
818 West Lacey Road
Forked River, NJ 08731

Resident Inspector
c/o U.S. Nuclear Regulatory Commission
P.O. Box 445
Forked River, NJ 08731

Kent Tosch, Chief
New Jersey Department of
Environmental Protection
Bureau of Nuclear Engineering
CN 415
Trenton, NJ 08625

Deborah Staudinger
Hogan & Hartson
Columbia Square
555 13th St., NW
Washington, DC 20004

REQUEST FOR ADDITIONAL INFORMATION
ON THE SPENT FUEL POOL EXPANSION
AT THE OYSTER CREEK NUCLEAR GENERATING STATION

1. You indicated in the Reference that the calculated seismic loading stresses in a fully loaded rack will not exceed those determined per Standard Review Plan (SRP) Section 3.8.4 which was used as a guide. With respect to your stress calculations using the DYNARACK computer code presented in Chapter 6 of the Reference:

   (a) Explain how the simple stick model used in the dynamic analyses can represent accurately and realistically the actual complicated nonlinear hydrodynamic fluid-rack structure interactions and behavior of the fuel assemblies and the box-type rack structures; and discuss whether or not a finite element (FE) model with 3-D plate, beam and fluid elements together with appropriate constitutive relationships would be a more realistic, accurate approach to analyze the fluid-structure interactions in contrast to the simple stick model.

   (b) Provide the results of any prototype experimental study that verifies the correct or adequate simulation of the fluid coupling utilized in the numerical analyses for the fuel assemblies, racks and walls. If no such experimental study is available, explain how the current level of the DYNARACK code verification is adequate for engineering application without further experimental verification work.

   (c) Provide the physical dimensions of the racks, and the gaps between the racks and the gaps between the racks and the spent fuel pool (SFP) walls.

   (d) Demonstrate that the artificial seismic ground motion time histories used in the analyses satisfy the power spectral density (PSD) requirement of SRP 3.7.1.

2. You indicated in the Reference that the design conditions described in SRP 3.8.4 and American Concrete Institute (ACI) Code 349-80 were used as guidance in the calculations of SFP capacity. With respect to the SFP capacity calculations using the ANSYS computer code presented in Chapter 8 of the Reference:

   (a) Provide the physical dimensions of the reinforced concrete slab and walls, liner plate and the details of liner anchorage; also provide the material properties used in the analysis.

   (b) Provide the mesh used in the analysis; describe the boundary conditions and indicate them in the mesh.

   (c) Describe the applied loading conditions concluding the magnitudes, and indicate their locations in the mesh.

   (d) Explain how the interface between the liner and concrete slab is modeled, and also, how the liner anchors are modeled; explain how such modeling accurately represents the real structural behavior.

Enclosure

(e) Provide the calculated governing factors of safety in a tabular form for the axial, shear, bending and combined stress conditions in the pool.

3. The maximum bulk pool temperature during a partial core discharge (shown as Case (i) in Table 5.8.1 and Figure 5.8.1 of the Reference) exceeds 150 °F which is the allowable ACI Code 349 limit for concrete temperature for normal operation or any other long-term period. Provide technical justifications for exceeding the allowable temperature of 150 °F. Also describe the details of the SFP structural analysis including the material properties (i.e., modulus of elasticity, shear modulus, poisson's ratio, yield stress and strain, ultimate stress and strain, compressive strength) used in the analysis for the reinforced concrete slab and walls, liner plate, welds and anchorages.

Reference:

Letter, M. B. Roche, GPU Nuclear, Inc., to U.S. NRC, "Oyster Creek Nuclear Generating Station, License No. DPR-16, (Docket No. 50-219), Technical Specification Change Request No. 261-Spent Fuel Pool Expansion," dated June 18, 1999.