GPU NUCLEAR

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February 10, 2000
1940-00-20020

U. S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555

Subject: Oyster Creek Nuclear Generating Station
Facility License No. DPR-16
Docket No. 50-219
Follow-up to Response to Request for Additional Information re:
Proposed License Amendment for Spent Fuel Pool Expansion

Reference: GPU Nuclear letter 1940-99-20662 dated January 6, 2000, Sander Levin to U.S. NRC, "Response to Request for Additional Information re: Proposed License Amendment for Spent Fuel Pool Expansion"

The purpose of this letter is to revise the response to question No. 1 in the attachment to the referenced letter. The attachment to this letter restates the NRC question and provides an updated response. A vertical line in the right margin marks the area of change. The reason for the update is a potential change in the schedule for installation of the additional spent fuel pool storage racks. Our initial response assumed all four new racks would be installed prior to the next refueling. In order to optimize the next refueling outage (18R) schedule, GPU Nuclear is considering a phased installation approach. This may result in any number of racks installed before refueling begins. The remaining rack(s) would be installed later.

Should further information be required, please contact Mr. Paul F. Czaya of our Nuclear Safety and Licensing Department at 609-971-4139.

Very truly yours,

Sander Levin
Acting Director
Oyster Creek

Attachment

c: Administrator, USNRC Region I
USNRC Resident Inspector
Oyster Creek USNRC Project Manager

A001

Attachment

1. In your submittal, you state that "Radiation levels in zones surrounding the pool are not expected to be affected significantly. Existing shielding around the fuel (water, stainless steel pool liner, and concrete wall) provides more than adequate protection, despite the slightly closer approach of the new racks to the wall of the pool." Discuss the calculation methodology used to draw the above conclusion, and provide the general (mean) increase in dose rates and the maximum dose rate increase (and locations) in, around and under the pool in accessible areas. You should describe how the dose rates will differ both during storage and movement of spent fuel.

Response

The calculation methodology for determining radiation dose rates in accessible areas external to the concrete pool wall utilized the ORIGEN-S and QAD codes. ORIGEN-S was used to compute the gamma radiation source terms from the spent fuel. QAD (a three-dimensional point kernel shielding code with buildup factors) was used to track the gamma radiation through water and steel walls of the storage cells and the concrete shield walls.

The area of potential increase in radiation level due to the installation of the additional spent fuel storage racks is the north sector of the spent fuel pool. This is the location of the new fuel racks indicated in Figure 1-1 of the Licensing Report (Holtec Report HI-981983) attached to our June 18, 1999 license amendment request. The increase in radiation levels inside the spent fuel pool has not been calculated. The only impact an increase in radiation levels would have inside the pool is on divers. The radiation protection of divers, although their use is not expected during the rack installation process, is addressed in response to question 2. Installation of the additional four storage racks may occur in phases. Subsequent to initial installation of the new spent fuel storage rack(s), any use of divers will be addressed, based upon the circumstances for their need, at that time.

The calculated dose rate at the external surface of the shield wall is 0.55 mr/hr. The general area dose rate would be less than this value absent other radiation sources. A recent survey indicated a maximum contact dose rate on the external surface of the north side shield wall of 0.4 mr/hr with other readings at 0.2 mr/hr or less on the 95-foot elevation of the reactor building. This area is essentially an occasionally used personnel corridor with no other significant radiation sources. At the 75-foot elevation contact dose rates at the shield wall were less than 2 mr/hr in the northeast sector. This area is directly adjacent to a high radiation area on the north side of the fuel pool shield wall where the radiation source is dominated by fuel pool cooling system components. The calculated dose rate of 0.55 mr/hr falls within the limits that would permit 10 hours/week occupancy

(FSAR Table 12.3-1) and is only slightly above the dose rate for unrestricted access allowed outside of controlled areas.

The area beneath the pool (at the ceiling level in the shutdown cooling system room) was conservatively calculated to be 10.4 mr/hr and falls in the range that would allow up to 5 hours occupancy per week. The shutdown cooling system room is currently a high radiation area. Shutdown cooling system components are the primary sources of radiation. Increased fuel storage will have a negligible effect on radiation levels in this area.