

April 20, 1988

Docket Nos.: STN 50-454
and STN 50-455

Mr. L. D. Butterfield, Jr.
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Post Office Box 767
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Dear Mr. Butterfield:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - BYRON SPENT FUEL POOL EXPANSION
(TAC NOs. 62112 AND 63266)

In our letter dated November 25, 1986, we requested additional information concerning occupational exposure resulting from the reracking of the Byron spent fuel pool. However, at that time you were planning to rerack the pool before it was filled with water. As you noted in your December 22, 1987 letter, the schedule for installation of the racks has been changed because the racks were not delivered on time; thus "dry" reracking is no longer possible.

Enclosed is a request for additional information concerning occupational exposure resulting from "wet" reracking. Provide your response within 30 days of the date of this letter. For any further clarification, please contact me at (301) 492-3018.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P. L. 96-511.

Sincerely,

Original Signed By/

Leonard N. Olshan, Project Manager
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosure:
As stated

cc:
See next page

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REQUEST FOR ADDITIONAL INFORMATION
BYRON STATION UNITS 1 AND 2 SPENT FUEL STORAGE

1.

Provide a description of fission and corrosion product sources in the spent fuel pool (SFP) water from: (a) introduction of primary coolant into SFP water, (b) movement of fuel from the core into the pool, and (c) defective fuel stored in the pool. Include a listing of the radionuclides and their concentrations (expressed in $\mu\text{Ci/mL}$) expected during normal operations and refueling. The radionuclides of interest should include ^{58}Co , ^{60}Co , ^{134}Cs , and ^{137}Cs .

2.

Dose Rates from Fuel Assemblies, Control Rods, and Burnable Poison Rods

- a. Provide a description of the dose rate at the surface of the pool water from the fuel assemblies, control rods, burnable poison rods or any miscellaneous materials that may be stored in the pool. Additionally, provide the dose rate from individual fuel assemblies as they are being placed into the fuel racks. Information relevant to the depth of water shielding the fuel assemblies as they are being transferred into the racks should be specified. If the depth of water shielding over a fuel assembly while it is being transferred to a spent fuel rack is less than 10 feet, or the dose rate 3 feet above the spent fuel pool (SFP) water is greater than 5 mR/hr above ambient radiation levels, then submit a Technical Specification specifying the minimum depth of water shielding over the fuel assembly as it is being transferred to the fuel rack and the measures that will be taken to assure that this minimum depth will not be degraded.
- b. Address the dose rate changes at the side of the pool concrete shield walls, where occupied areas are adjacent to these walls, as a result of the modification. Increasing the capacity of the pool may cause spent fuel assemblies to be relocated close to the concrete walls of the pool, resulting in an increase of radiation levels in occupied areas. Please evaluate this potential problem.

3.

Dose Rates from SFP Water

Provide information on the dose rates at the surface of SFP water resulting from radioactivity in the water. Include: (1) dose rate levels in occupied areas and along the edges and center of the pool and on the fuel handling crane; (2) effects of crud buildup; and (3) based on refueling water activity, the dose rates before, during, and after refueling.

4.

Dose Rates from Airborne Isotopes

Based on the source terms, provide the dose rates from submersion and dose commitments from exposure to the concentration of ^{85}Kr and ^3H .

5.

Dose Assessment from Modification Procedures

- a. Discuss the manner in which occupational exposure will be kept ALARA during the modification. Include the need for and the manner in which cleaning of the crud on the SFP walls will be performed to reduce exposure rates in the SFP area.
- b. Discuss vacuum cleaning of SFP floors if divers are used and the distribution of existing spent fuel stored in racks to allow maximum water shielding to reduce dose rates to divers.
- c. Describe plans for cleanup of the SFP water to minimize radioactive contamination and to ensure fuel pool clarity and underwater lighting acceptance criteria to help ensure good visibility.
- d. Discuss underwater radiation surveys that will be made before any diving operation. These surveys should be performed before or after any fuel movements or movements of any irradiated components stored in the pool.
- e. State your intent to equip each diver with a calibrated alarming dosimeter and personnel monitoring dosimeters, which should be checked periodically to ensure that prescribed dose limits are not being exceeded.
- f. Discuss any preplanning of work by divers as required.
- g. Discuss your provision for surveillance and monitoring of the spent fuel pool work area by Health Physics personnel during the modification.

6

Provide an estimate of the total man-rem to be received by personnel occupying the spent fuel pool areas based on all operations in that area including those resulting from (2), (3), and (5) above. Describe the impact of the spent fuel storage rack modification on these estimates.