

EXXON NUCLEAR COMPANY, Inc.

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April 27, 1982

JCC:043:82



Mr. James R. Miller, Chief
Standardization & Special Projects Branch
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: XN-NF-81-21(P), "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel"

- Ref.: 1) R. B. Nixon, R. Matzner, and R. T. Lahey, Jr., "The Effect of Reduced Clearance and Rod Bow on Critical Power in Full-Scale Simulations of 8x8 BWR Fuel," 75-HT-69, American Society of Mechanical Engineers (August 1975)
- 2) K. N. Woods, "Non-Destructive Examination for Exxon Nuclear Fuel at the Oyster Creek Reactor, Spring 1977," XN-NF-77-49, (November 1977)

Dear Mr. Miller:

The purpose of this letter is to provide additional information relative to fuel rod bowing in support of the subject topical report. This information was requested informally by the NRC Staff reviewer.

The subject report identifies as a design basis a minimum rod-to-rod clearance of 90 mils for operation without a fuel rod bow penalty being applied to the MCPR calculation. This limit is based on the conclusions of Reference (1), which reported test data indicating only very small reductions in critical heat flux for minimum clearance values as low as 60 mils. Reference (2) has demonstrated that ENC's BWR fuel exhibits little tendency to bow; hence, no MCPR penalty for fuel rod bowing is expected for the subject fuel.

Neutronic effects of fuel rod bowing in BWR's are also expected to be small. What little bowing was observed in Oyster Creek was physically located in the lower portion of the assembly, while the region most likely to experience CHF is the upper part of the assembly. Thus, the nuclear effects of anticipated fuel rod spacing irregularities are not expected to have a bearing on CHF determinations.

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AN AFFILIATE OF EXXON CORPORATION

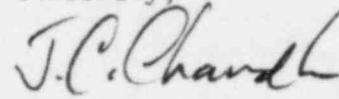
Mr. J. Miller (USNRC)

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If you have any questions regarding this matter, please feel free to call me at 509-375-8639.

Sincerely,

A handwritten signature in dark ink, appearing to read "J.C. Chandler". The signature is fluid and cursive, with the first name "J.C." and the last name "Chandler" clearly distinguishable.

J. C. Chandler
Reload Fuel Licensing

JCC:gf

CC: J. S. Berggren
R. O. Meyer
D. A. Powers