TERA

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

JAN 24 1980

Mr. Thomas M. Anderson, Manager
Nuclear Safety Department
Westinghouse Electric Corporation
P. O. Box 355
Pittsburgh, Pennsylvania 15230

Dear Mr. Anderson:

SUBJECT: REVIEW OF WCAP-9179

Additional information is needed to complete our review of Westinghouse Electric Corporation topical report WCAP-9179 entitled "Properties of Fuel and Core Component Materials." The additional information requested is enclosed.

This additional information is needed by March 6, 1980 to meet our review schedule. If you cannot meet this date, please inform us within ten days after receipt of this letter of the date you plan to submit your response.

Sincerely,

John F. Stolz

John F. Stolz, Chief
Light Water Reactors Branch No. 1
Division of Project Management

Enclosure:
Request for Additional
Information

cc: Mr. D. Rawlins
Westinghouse Electric Corporation
P. O. Box 355
Pittsburgh, Pennsylvania 15230

8002150 039

ENCLOSURE

QUESTIONS ON WCAP-9179

1. Revision 1 to WCAP-9179 provides several constants and correlations for material properties that are not supported by references. We have listed below those material properties for which Westinghouse has omitted references. Please provide the references. Following our approval of WCAP-9179, these references should appear in the approved version of WCAP-9179.

Material	Material Property
uranium dioxide	chemical compatibility with Zircaloy-4
Zircaloy-4	thermal expansion (for cladding) yield strengths
304 stainless steel	thermal expansion chemical composition thermal conductivity Young's modulus stress-strain curves
Inconel 718	melting point chemical composition
antimony-beryllium	thermal expansion chemical composition thermal conductivity compressive modulus compressive strength
borosilicate glass	thermal expansion chemical composition chemical compatibility with water softening point creep
boron carbide	thermal expansion

2. First-round question number 6 (Ref. 1) requested that Westinghouse provide for review the ultimate tensile strength of Zircaloy-4 components, provided this property was used in licensing applications. The Westinghouse response (Ref. 2) stated that Zircaloy-4 ultimate tensile strengths were not used in the design analyses of present fuel assembly designs. Recently in a Westinghouse presentation to the staff and in subsequent applicant submittals (Ref. 3 and 4) the ultimate tensile strength of Zircaloy was employed in licensing calculations. Therefore, please submit for review this property and the required references.

References

1. Letter from John F. Stolz, NRC, to Thomas M. Anderson, Westinghouse, Subject: Review of WCAP-9179, dated September 7, 1978.

2. Letter from Thomas M. Anderson, Westinghouse, to John F. Stolz, NRC, Subject: Response to Questions on Properties of Fuel and Core Component Materials, NS-TMA-1985, dated November 10, 1978.

3. Letter from L. M. Mills, Tennessee Valley Authority, to L. S. Rubenstein, NRC, Dockets 50-372 and 50-328, dated November 27, 1979.

4. Letter from William O. Parker, Duke Power Company, to Harold R. Denton, NRC, Dockets 50-369 and 50-370, dated December 14, 1979.