GENERAL ELECTRIC

NUCLEAR POWER

SYSTEMS DIVISION

GENERAL ELECTRIC COMPANY, 175 CURTNER AVE., SAN JOSE, CALIFORNIA 95125

MC 682, (408) 925-5722

RHB-065-79
MFN-297-79

December 10, 1979

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, DC 20555

Attention: Mr. R. P. Denise, Acting Assistant Director
of Reactor Safety
Division of Systems Safety

Gentlemen:

SUBJECT: GENERAL ELECTRIC INFORMATION REPORT NEDE-24196, "BASIS FOR BWR/6 8X8 FUEL THERMAL ANALYSIS APPLICATION," JUNE 1979

References:
1) General Electric Licensing Topical Report NEDE-10958-P-A and NEDO-10958-A, "General Electric Thermal Analysis Basis (GETAB): Data, Correlation and Design Application," January 1977
2) Letter from R. Engel (GE) to D. G. Eisenhut (NRC) and R. L. Tedesco (NRC), "Additional Information, 8X8R Fuel GETAB R-Factors", March 30, 1979

As previously agreed by E. P. Stroupe during a conversation with R. L. Tedesco in March 1979, we have enclosed for your information ten copies of the subject report which document the basis for the BWR/6 8X8 fuel design thermal analysis. The data presented in the enclosed report is based on 723 steady state data points generated from full-scale 74 rod critical power tests of prototypical fuel assemblies performed in the ATLAS test facility. The test results were used to establish BWR/6 8X8 fuel design unique additive constants used for R-factor calculations. The R-factor is a parameter in the GEXL correlation which describes the relative susceptibility of a rod to boiling transition. The content of the report and the methodology used to determine the additive constants are consistent with the methods and data supplied in the approved model given in Reference 1.

X601
S
1/10
PROP ENCL.:
FILES (2)
R. DENISE (8)

1573 292

C 7912140 2.51

The GEXL correlation is a completely empirical correlation, optimized to give the best prediction of critical power for specific fuel bundle types. ATLAS tests on prototypical fuel bundles are performed for each new fuel design to determine the constants used in the GEXL correlation and the additive constants used to calculate the limiting R-factor. The ATLAS tests on the BWR/6 8X8 fuel design showed that the GEXL constants documented in Reference 1 for the 8X8 fuel design are also applicable to the BWR/6 fuel. Use of the 8X8 GEXL correlation with the new BWR/6 R-factors resulted in a mean experimental critical power ratio (ECPR) of 0.9910 with a standard deviation of 0.0255.

Please note that the enclosed report contains information consistent with that previously provided to NRC in Reference 2. Reference 2 provided our response to NRC concerns generated during the review of "Basis for 8X8 Retrofit Fuel Thermal Analysis Application," NEDE-24131, September 1978.

It should be noted that NEDE-24196 contains information which the General Electric Company customarily maintains in confidence and withholds from public disclosure. The information has been handled and classified as proprietary to General Electric, as indicated in the attached affidavit, and we hereby request that NEDE-24196 be withheld from public disclosure in accordance with the provisions of 10CFR2.790.

If you have any questions relative to the enclosed report, or require additional copies, please contact H. C. Pfefferlen of my staff at (408) 925-3392.

Very truly yours,

R H Buchholz

R. H. Buchholz, Manager
BWR Systems Licensing
Safety and Licensing Operation

RHB:rf/1277-8

Enclosures

cc: L. S. Gifford

1573 293

GENERAL ELECTRIC COMPANY

AFFIDAVIT

I, Elwood P. Stroupe, being duly sworn, depose and state as follows:

1. I am Manager, BWR Project Licensing, General Electric Company, and have been delegated the function of reviewing the information described in paragraph 2 which is sought to be withheld and have been authorized to apply for its withholding.

2. The report sought to be withheld is designated as NEDE-24196, "Basis for BWR/6 8X8 Fuel Thermal Analysis Application," June 1979.

3. In designating material as proprietary, General Electric utilizes the definition of proprietary information and trade secrets set forth in the American Law Institute's Restatement Of Torts, Section 757. This definition provides:

> "A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business and which gives him an opportunity to obtain an advantage over competitors who do not know or use it.... A substantial element of secrecy must exist, so that, except by the use of improper means, there would be difficulty in acquiring information.... Some factors to be considered in determining whether given information is one's trade secret are: (1) the extent to which the information is known outside of his business; (2) the extent to which it is known by employees and others involved in his business; (3) the extent of measures taken by him to guard the secrecy of the information; (4) the value of the information to him and to his competitors; (5) the amount of effort or money expended by him in developing the information; (6) the ease or difficulty with which the information could be properly acquired or duplicated by others."

4. Some examples of categories of information which fit into the definition of proprietary information are:

   a. Information that discloses a process, method or apparatus where prevention of its use by General Electric's competitors without license from General Electric constitutes a competitive economic advantage over other companies;

   b. Information consisting of supporting data and analyses, including test data, relative to a process, method or apparatus, the application of which provide a competitive economic advantage, e.g., by optimization or improved marketability;

Operation for technical content, competitive effect and determination of the accuracy of the proprietary designation in accordance with the standards enumerated above. Disclosures outside General Electric are generally limited to regulatory bodies, customers and potential customers and their agents, suppliers and licensees only in accordance with appropriate regulatory provisions or proprietary agreements.

8. The document mentioned in paragraph 2 above has been evaluated in accordance with the above criteria and procedures and has been found to contain information which is proprietary and which is customarily held in confidence by General Electric.

9. The information contained in NEDE-24196 which is considered to be proprietary, consists of the data base, R-factor additive constants derivation, and GEXL correlation predictive capabilities for the BWR/6 8X8 fuel design.

10. The information, to the best of my knowledge and belief, has consistently been held in confidence by the General Electric Company, no public disclosures have been made, and it is not available in public sources. All disclosures to third parties have been made pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence.

11. Public disclosure of the information sought to be withheld is likely to cause substantial harm to the competitive position of the General Electric Company and deprive or reduce the availability of the profit-making opportunities because:

    a) The costs associated with the development of the proprietary information totals approximately $4,205,000. These costs include $4,000,000 for the ATLAS test facility, $100,000 for engineering and test personnel, $100,000 for initial and replacement test hardware, and $5,000 for computer time.

    b) The information contained in NEDE-24196 along with the actual implementation of the correlation is a significant part of the General Electric technological base which is sold in the form of Licensee Agreements. The precise value of the information is difficult to separate from the total value of the License Agreement, but it is clearly substantial.

    c) The information sought to be withheld reveals important product features as well as information describing analytical design methods, design analysis results, and component performance data developed or obtained with the expenditure of a substantial amount of effort and money.

c. Information which if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality or licensing of a similar product;

d. Information which reveals cost or price information, production capacities, budget levels or commercial strategies of General Electric, its customers or suppliers;

e. Information which reveals aspects of past, present or future General Electric customer-funded development plans and programs of potential commercial value to General Electric;

f. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection;

g. Information which General Electric must treat as proprietary according to agreements with other parties.

5. In addition to proprietary treatment given to material meeting the standards enumerated above, General Electric customarily maintains in confidence preliminary and draft material which has not been subject to complete proprietary, technical and editorial review. This practice is based on the fact that draft documents often do not appropriately reflect all aspects of a problem, may contain tentative conclusions and may contain errors that can be corrected during normal review and approval procedures. Also, until the final document is completed it may not be possible to make any definitive determination as to its proprietary nature. General Electric is not generally willing to release such a document to the general public in such a preliminary form. Such documents are, however, on occasion furnished to the NRC staff on a confidential basis because it is General Electric's belief that it is in the public interest for the staff to be promptly furnished with significant or potentially significant information. Furnishing the document on a confidential basis pending completion of General Electric's internal review permits early acquaintance of the staff with the information while protecting General Electric's potential proprietary position and permitting General Electric to insure the public documents are technically accurate and correct.

6. Initial approval of proprietary treatment of a document is made by the Subsection Manager of the originating component, the man most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within the Company is limited on a "need to know" basis and such documents at all times are clearly identified as proprietary.

7. The procedure for approval of external release of such a document is reviewed by the Section Manager, Project Manager, Principal Scientist or other equivalent authority, by the Section Manager of the cognizant Marketing function (or his delegate) and by the Legal

Availability of this information to competitors would enable them to utilize this information without similar expenditures of effort and money.

Elwood P. Stroupe, being duly sworn, deposes and says that he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at San Jose, California, this 30th day of Nov., 1979.

Elwood P. Stroupe

Elwood P. Stroupe, Manager
BWR Project Licensing
General Electric Company

STATE OF CALIFORNIA)
COUNTY OF SANTA CLARA) ss:

Subscribed and sworn before me this 30th day of Nov 1979.

Ruthe M. Kinnamon
NOTARY PUBLIC IN AND FOR SAID
COUNTY AND STATE

OFFICIAL SEAL
RUTHE M. KINNAMON
NOTARY PUBLIC - CALIFORNIA
SANTA CLARA COUNTY
My comm. expires MAR 28, 1981

175 Curtner Ave., San Jose, CA 95125

1573 297

EPS:rf/1279-80