



Westinghouse
Electric Corporation

Energy Systems

Nuclear Services Division

Box 355
Pittsburgh Pennsylvania 15230-0355

February 26, 1997

AW-97-1081

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

Attention: Ms. Claudia M. Craig

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Westinghouse Presentation, "Fuel Assembly Mechanical Model Associated with Incomplete RCCA Insertion," dated February 19-20, 1997 (Proprietary)

Dear Ms. Craig:

The application for withholding is submitted by Westinghouse Electric Corporation ("Westinghouse") pursuant to the provisions of paragraph (b)(1) of Section 2.790 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary material for which withholding is being requested is identified in the proprietary version of the subject report. In conformance with 10 CFR Section 2.790, Affidavit AW-97-1081 accompanies this application for withholding, setting forth the basis on which the identified proprietary information may be withheld from public disclosure.

Accordingly, it is respectfully requested that the subject information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10CFR Section 2.790 of the Commission's regulations.

Correspondence with respect to this application for withholding or the accompanying affidavit should reference AW-97-1081 and should be addressed to the undersigned.

Very truly yours,

H. A. Sepp, Manager
Regulatory and Licensing Engineering

Enclosure

cc: Kevin Bohrer/NRC (12H5)

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Proprietary Information Notice

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.790 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) contained within parentheses located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.790(b)(1).

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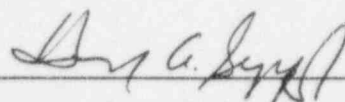
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COMMONWEALTH OF PENNSYLVANIA:

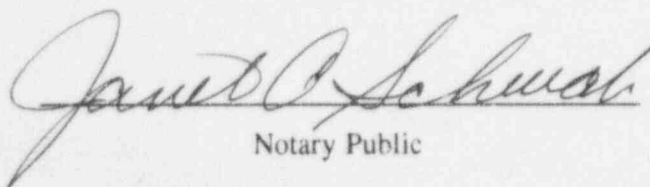
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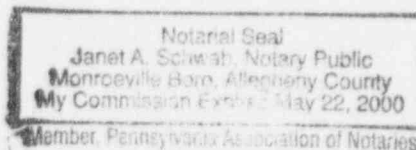
COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared Henry A. Sepp, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Corporation ("Westinghouse") and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:


Henry A. Sepp, Manager
Regulatory and Licensing Engineering

Sworn to and subscribed
before me this 26 day
of February, 1997


Notary Public



- (1) I am Manager, Regulatory and Licensing Engineering, in the Nuclear Services Division, of the Westinghouse Electric Corporation and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rulemaking proceedings, and am authorized to apply for its withholding on behalf of the Westinghouse Energy Systems Business Unit.
- (2) I am making this Affidavit in conformance with the provisions of 10CFR Section 2.790 of the Commission's regulations and in conjunction with the Westinghouse application for withholding accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by the Westinghouse Energy Systems Business Unit in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.790 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

- (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.
- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use 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 a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information which is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.
 - (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10CFR Section 2.790, it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in presentation material entitled Westinghouse Presentation, "Fuel Assembly Mechanical Model Associated with Incomplete RCCA Insertion," dated February 19-20, 1997 (Proprietary), being transmitted by Westinghouse Electric Corporation with Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk, Attention Ms. Claudia M. Craig. The proprietary information has been requested by the Nuclear Regulatory Commission and is being voluntarily provided by Westinghouse for review relative to the incomplete RCCA insertion phenomenon.

This information is part of that which will enable Westinghouse to:

- (a) Provide documentation of the methods for evaluating the implementation of fuel assembly and RCCA tests and inspections.
- (b) Establish applicable analytical technologies relative to inspections.
- (c) Establish the procedures and guidelines for the examination of fuel assemblies and RCCAs.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purposes of meeting NRC requirements for licensing documentation.
- (b) Westinghouse can sell support and defense of this information to its customers in the licensing process.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar evaluation services and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort,

having the requisite talent and experience, would have to be expended for developing the procedures, guidelines and analytical methods.

Further the deponent sayeth not.

**Westinghouse
Presentation to the NRC:**

**"Fuel Assembly Mechanical Model Associated
with Incomplete Rod Cluster Control
Assembly (RCCA) Insertion"**

February 19-20, 1997

NRC AGENDA (2/19-2/20)

- Fuel Assembly Familiarization
Discussion of Fuel Assembly
Configuration, Parts Nomenclature
Connections, etc. General Discussion
on Manufacturing Process & Methods
(Some Parts, Sketches, Drawings will
be Helpful. Sparrow
- Fuel Assembly Types
Key Features Differences/ Nomenclature Sparrow
- General Methods Development Plan
"GRBOW" Rev. 0
"GRBOW" Rev. 1
FEM Menke
- "GRBOW" Physical Phenomena Represented
Fuel Rod Growth
Corrosion
Irradiation Growth

Input
Dimensions
Material Characteristics

Model Assumptions
Code Methodology
Output

Reavis

Reavis

Reavis
- Comparisons with Field Data Menke/Reavis
- Address only Plant Data Questions Davis/Sparrow
- Address only Hot Cell/Field Data Davis/Sparrow

THIMBLE GROWTH & BOW MODEL

Westinghouse Proprietary Class 3

1. SPECIFY SYSTEM PARAMETERS

a.b.c

ROD WEIGHT & HYD LIFT

Westinghouse Proprietary Class 3

a.b.c

THIMBLE GROWTH & BOW MODEL

a.b.c

HOLD DOWN SPRING LOAD

a.b.c

**Figure 2.1: 12 FT AXIAL FAST FLUX & TEMPERATURE
PROFILES**

a.b.c

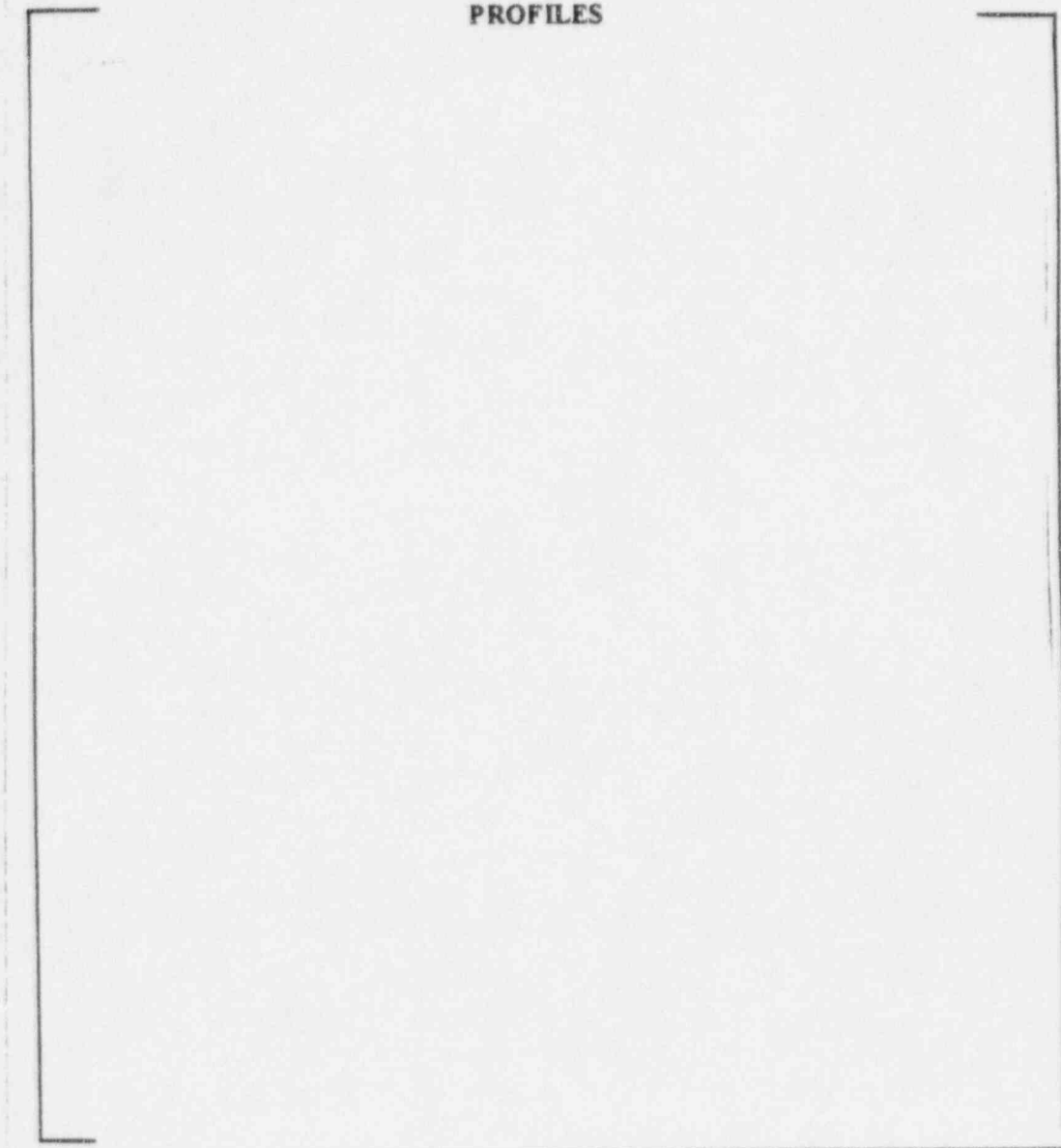
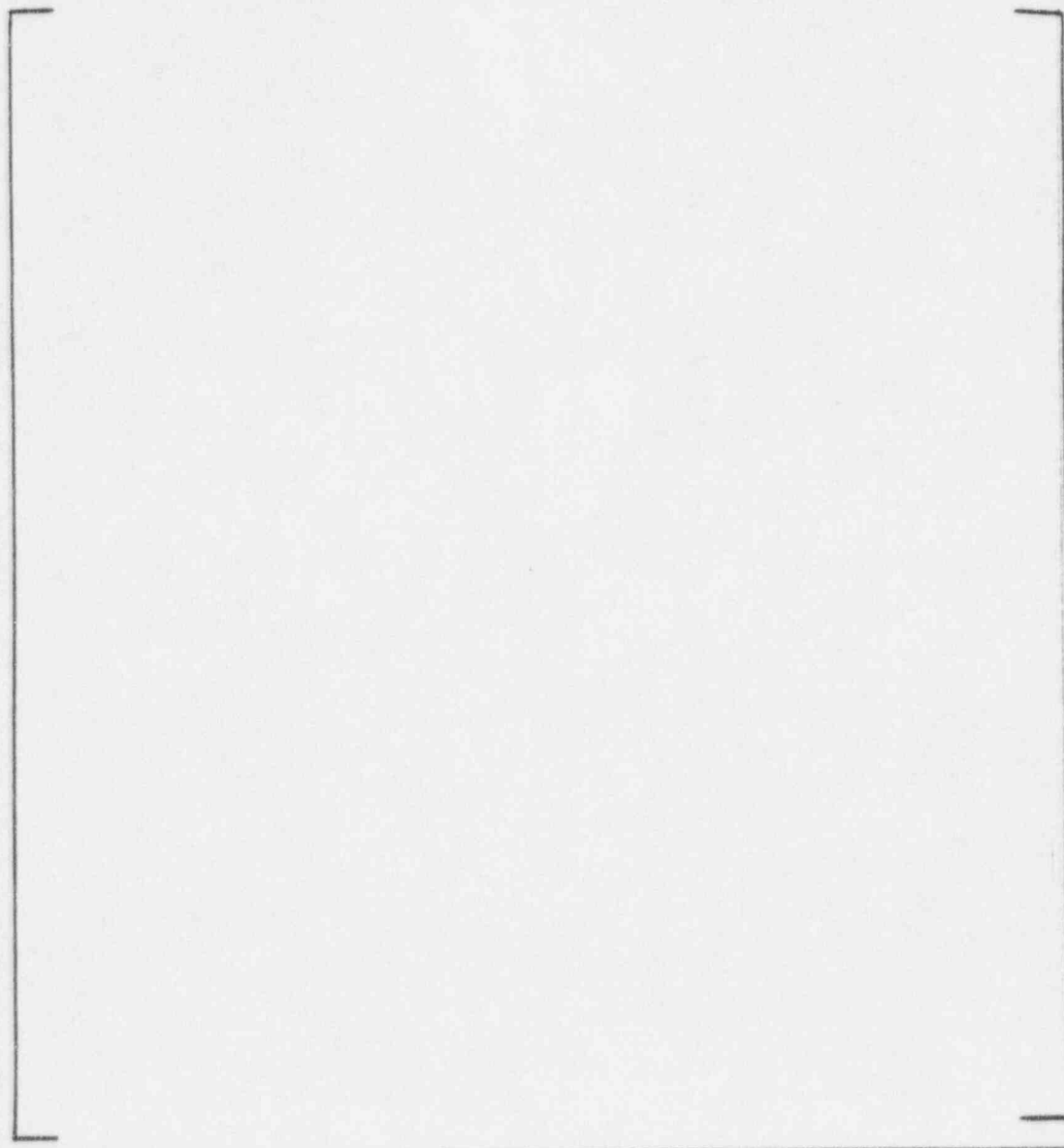


Figure 2.2: 14 FT AXIAL FAST FLUX & TEMPERATURE PROFILES



a.b.c

**Figure 2.3: 12 FT AXIAL FAST FLUX & TEMPERATURE
PROFILES (AXIAL BLANKET)**

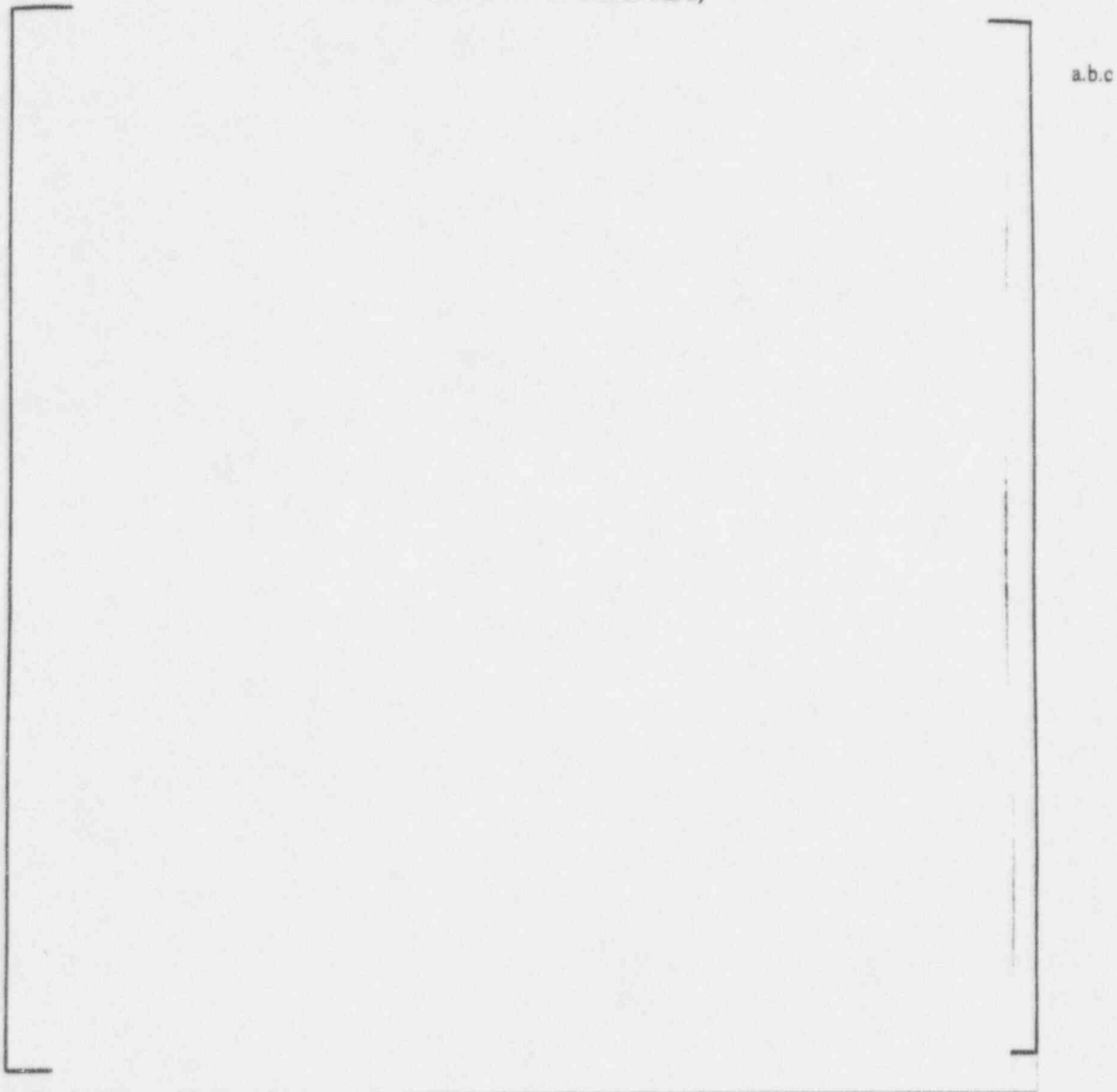
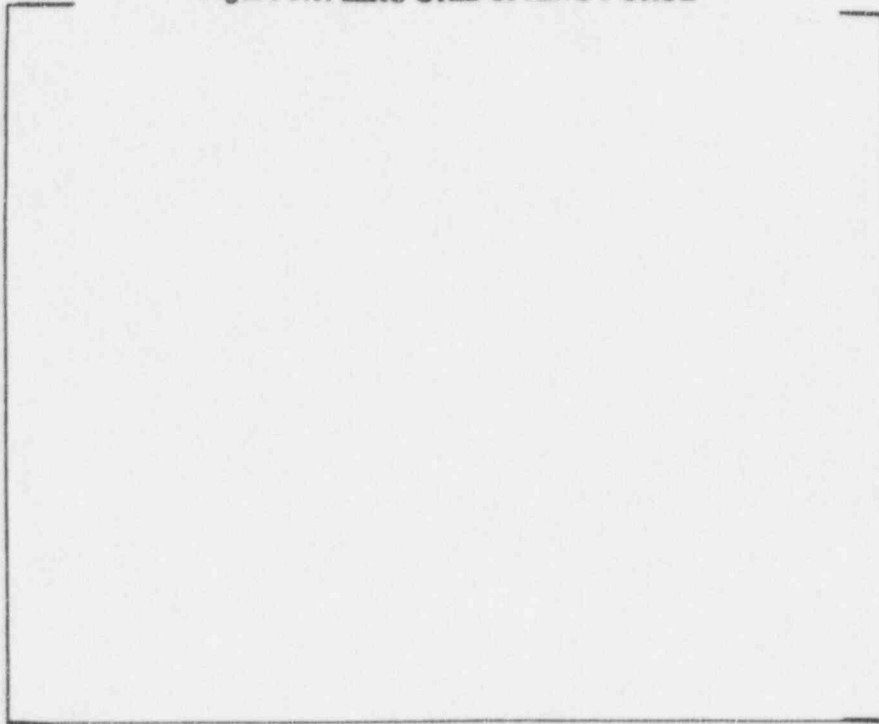


Figure 3.1: ZIRC GRID SPRING FORCE



a.b.c

Figure 3.2: INC 718 GRID SPRING FORCE

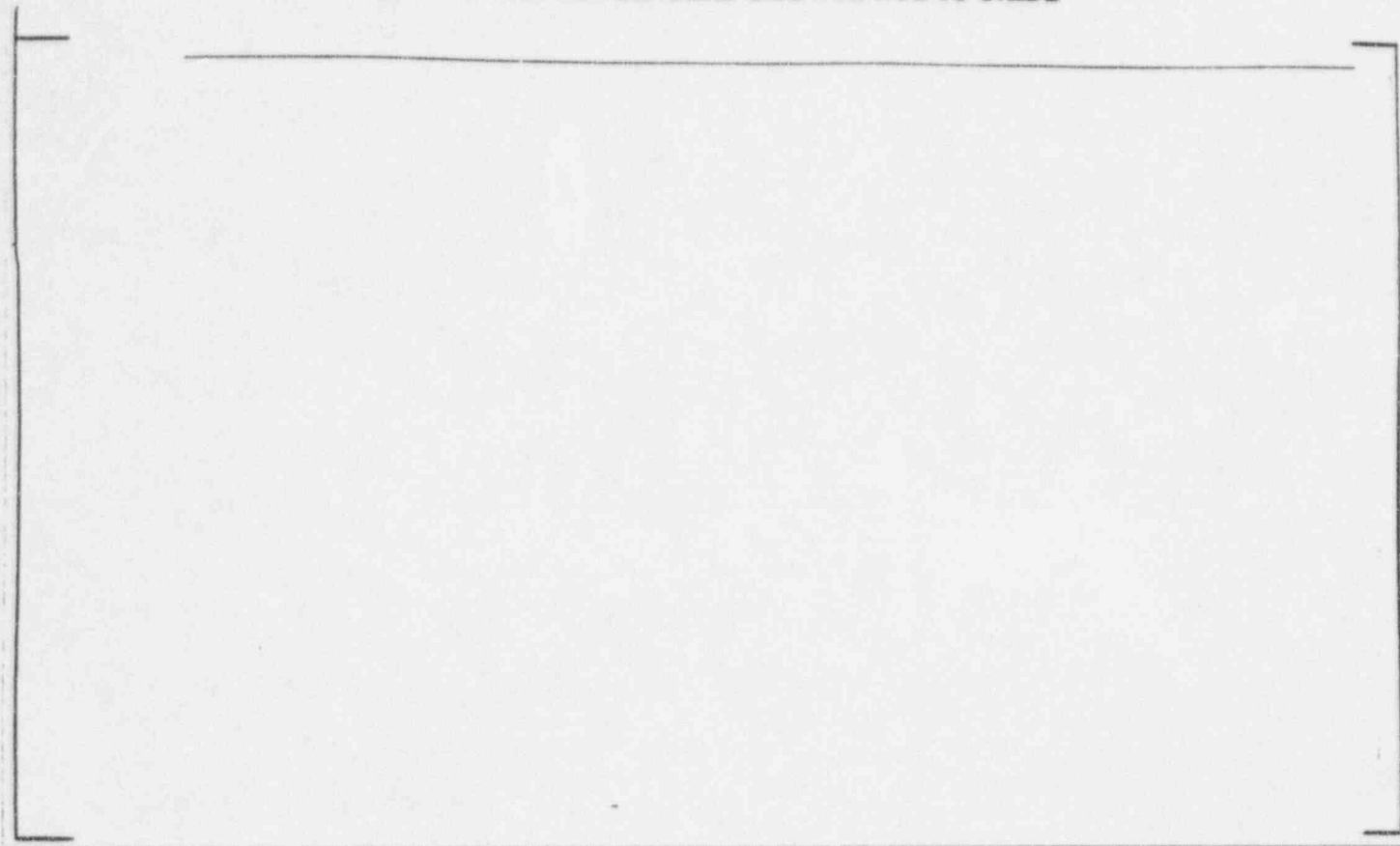


a.b.c

Figure 4.1: RATIO OF ZORBA TO REVNAC PREDICTIONS IN WC H50

a.b.c

Figure 4.2: MODEL FOR AXIAL GROWTH DUE TO OXIDE

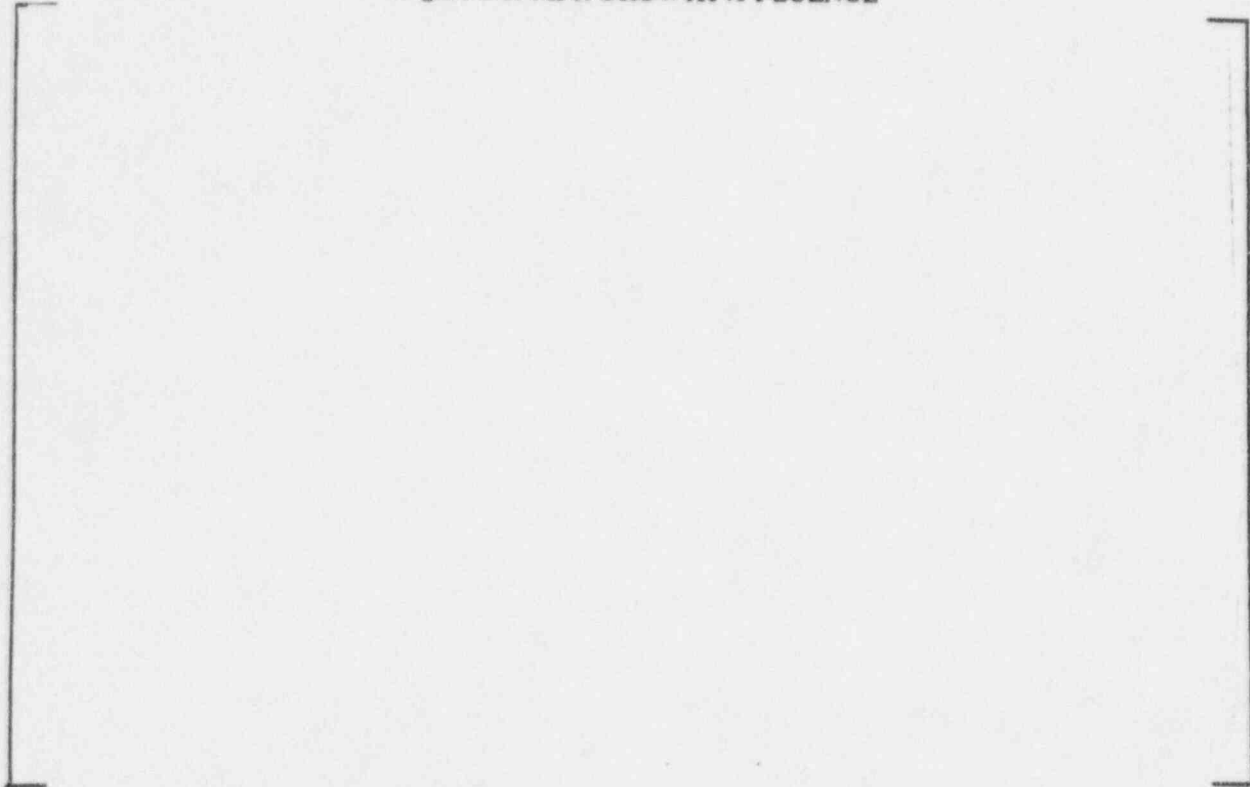


a.b.c

Figure 4.3: WOLF CREEK H50 SINGLE SIDE OXIDE THICKNESS

a.b.c

Figure 5.1: MPR GROWTH vs FLUENCE



a, b, c

Figure 5.2: MPR GROWTH vs FLUENCE



Figure 5.3: MPR GROWTH vs FLUENCE

a, b, c

Figure 5.4: MPR GROWTH vs FLUENCE

a, b, c

MEASURED vs PREDICTED ASY GROWTH

a, b, c

NA DP DRAG vs DP BOW

NA UPPER SPAN DRAG vs UPPER SPAN BOW

a, b, c

SUMMER ZIRLO FUEL ROD GROWTH

a, b, c

WC H50 ROD & ASSEMBLY GROWTH

a, b, c

WC H50 THIMBLE SPAN BOW

a, b, c

WC H50 SPAN 1 LOADS



a, b, c

WC H50 SPAN 2 LOADS



a, b, c

WC H50 SPAN 3 LOADS



a, b, c

WC H50 SPAN 4 LOADS



a, b, c

WC H50 SPAN 5 LOADS



a, b, c

WC H50 SPAN 6 LOADS



a, b, c

WC H50 SPAN 7 LOADS

a, b, c

WC J32 ROD & ASSEMBLY GROWTH

a, b, c

WC J32 THIMBLE SPAN BOW

WASST L

COMPARISON OF SPAN BOW WITH & W/O IFM

WC H50 ROD & ASSEMBLY GROWTH

a, b, c

H50 Ref - NC ZIRLO