



# Westinghouse

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U.S. Nuclear Regulatory Commission  
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Our ref: LTR-NRC-03-54

Attn: J. S. Wermiel, Chief  
Reactor Systems Branch  
Division of Systems Safety and Analysis

September 9, 2003

Subject: Presentation material for closed meeting with the NRC to discuss "Alternate Source Powder/Pellet use in Westinghouse PWRs" (Proprietary) in September 2003

Dear Mr. Wermiel:

Enclosed is one copy of the proprietary and one copy of the non-proprietary versions of the presentation material for the NRC/Westinghouse meeting to be held at the NRC in Rockville, Maryland on September 11, 2003.

Also enclosed is:

1. One (1) copy of the Application for Withholding, AW-03-1699 (Non-Proprietary) with Proprietary Information Notice.
2. One (1) copy of Affidavit (Non-Proprietary).

This information is being submitted by Westinghouse Electric Company LLC to support a proprietary meeting between Westinghouse and the NRC on Alternate Source Powder/Pellet use in Westinghouse PWRs.

This submittal contains proprietary information of Westinghouse Electric Company LLC. In conformance with the requirements of 10 CFR Section 2.790, as amended, of the Commission's regulations, we are enclosing with this submittal an Application for Withholding from Public Disclosure and an affidavit. The affidavit sets forth the basis on which the information identified as proprietary may be withheld from public disclosure by the Commission.

This material is for your internal use only and may be used solely for the purpose for which it is submitted. It should not be otherwise used, disclosed, duplicated, or disseminated, in whole or in part, to any other person or organization outside the Office of Nuclear Reactor Regulation without the expressed prior written approval of Westinghouse.

Correspondence with respect to this affidavit or Application for Withholding should reference AW-03-1699 and should be addressed to H. A. Sepp, Manager of Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, P. O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,



Brad F. Maurer, Acting Manager  
Regulatory Compliance and Plant Licensing

Enclosures

cc: F. Akstulewicz/NRR  
B. Benney/NRR  
U. Shoop/NRR  
S. L. Wu/NRR  
D. Holland/NRR  
E. Peyton/NRR



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Our ref: AW-03-1699

September 9, 2003

**APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE**

Subject: Presentation material for closed meeting with the NRC to discuss "Alternate Source Powder/Pellet use in Westinghouse PWRs" (Proprietary) on September 11, 2003

Reference: Letter from B. F. Maurer to J. S. Wermiel, LTR-NRC-03-54, dated September 9, 2003

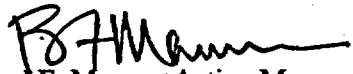
The Application for Withholding is submitted by Westinghouse Electric Company LLC ("Westinghouse"), pursuant to the provisions of Paragraph (b) (1) of Section 2.790 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

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-03-1699 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 10 CFR Section 2.790 of the Commission's regulations.

Correspondence with respect to this Application for Withholding or the accompanying affidavit should reference AW-03-1699 and should be addressed to H. A. Sepp, Manager of Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, P. O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

  
Brad F. Maurer, Acting Manager  
Regulatory Compliance and Plant Licensing

Enclosures

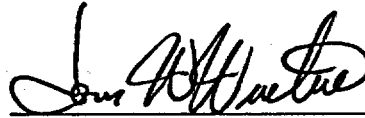
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared James W. Winters, 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 Company LLC ("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:



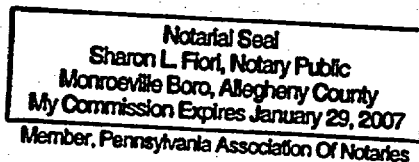
James W. Winters, Manager

Project Engineering and Integration

Sworn to and subscribed  
before me this 9th day  
of September, 2003



Notary Public



- (1) I am Manager, Project Engineering and Integration, in Nuclear Plant Programs, Westinghouse Electric Company LLC ("Westinghouse"), 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 rule making proceedings, and am authorized to apply for its withholding on behalf of the Westinghouse Electric Company LLC.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR 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 Electric Company LLC 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 that 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 10 CFR 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 as "Alternate source powder/pellets use in Westinghouse PWRs," dated September, 2003 for presentation to the Commission, being transmitted by Westinghouse Electric Company (LTR-NRC-03-54) letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk, Attention Mr. J. S. Wermiel. The proprietary information as submitted by Westinghouse Electric Company LLC is that associated with a closed meeting with the NRC scheduled for September 11, 2003.

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

- (a) Present Proprietary Information on Westinghouse's processing of UO<sub>2</sub> powder and pellets.
- (b) Provide the NRC with information regarding Westinghouse's manufacturing processes.

Further this information has substantial commercial value as follows:

- (a) The information requested to be withheld reveals Westinghouse's commercial position regarding the process for design of fuel powder and pellets.
- (b) The information requested to be withheld reveals the distinguishing aspects of a design developed by Westinghouse.

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 manufacturing processes 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.

Further the deponent sayeth not.



**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) 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).

**COPYRIGHT NOTICE**

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.790 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.

**Alternate source powder/pellets use  
in Westinghouse PWR's**

**September 11, 2003**

This document contains information proprietary to Westinghouse Electric Company LLC, a Delaware limited liability company ("Westinghouse"), and Nuclear Fuels Business Unit; it is submitted in confidence and is to be used solely for the purpose for which it is furnished, then returned upon request. This document and such information is not to be reproduced, transmitted, disclosed or used otherwise in whole or in part without prior written authorization of Westinghouse Electric Company and Nuclear Fuels Business Unit.

## Program Objectives

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- Establish interchangeability of powder/pellets from alternate source for use in W PWR's
  - Use of other than Columbia ADU conversion process derived powder or pellets produced at other than Columbia site using pelleting process within the WCAP commitments
- Set criteria for W-Columbia as well as licensees to use W densification model in Fuel Rod Design Model analysis for alternate source powder and/or pellets
- This program is for Westinghouse PWR's only (not in Ex-CE plants)

## Alternate source powder/pellets

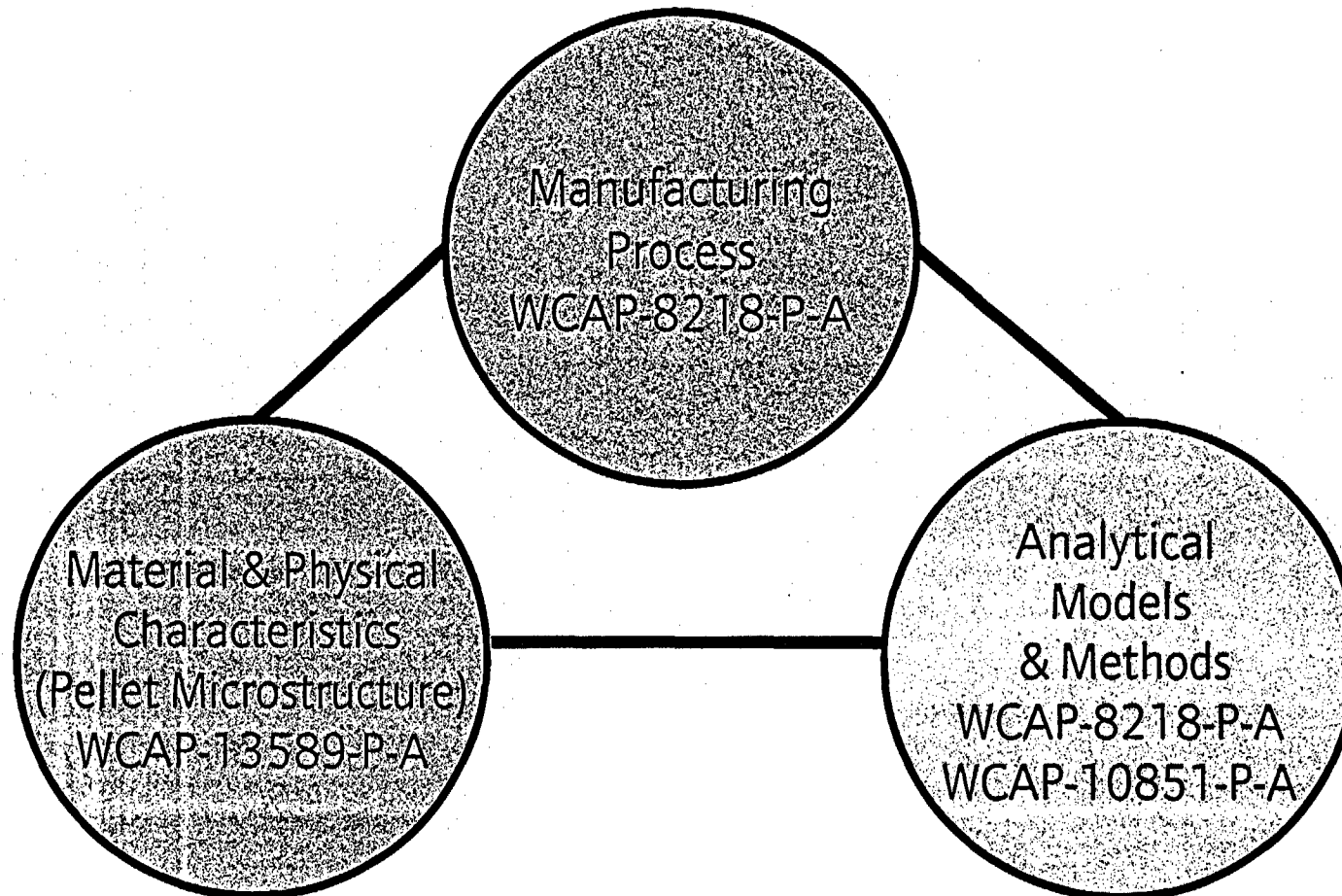
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### Examples only

- Pellets produced at BNFL using BNFL Springfield IDR powder
- Pellets produced at W Columbia using BNFL Springfield IDR powder
- Pellets produced at W Columbia using mixtures of BNFL Springfield IDR powder and ADU powder
- Pellets produced at W Columbia using ATOM AUC process powder

## Current Licensing Basis

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# WCAP 8218 – W Densification Model

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## WCAP 8218 – W Densification Model

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# Pelleting parameters and WCAP source

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	a, c
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## Applicability of WCAP 13589

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- Similarity in microstructure between ADU conversion process derived  $\text{UO}_2$  powder pellet microstructure and any other source pellet allows use of PAD densification and swelling model and exemption from clad COLLAP



- Specifies conditions for uniform continuous densification which would prevent clad flattening and gaps in the stack

## Applicability of WCAP 13589

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a, c

# Equivalency Demonstration

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- Development/verification of equivalent microstructure
  - | Evaluation of current pellet pore size distribution and microstructure
  - | Development of Alternate pore former
    - » Evaluate Poreformers
    - » Manufacturability
    - » Perform pre-qualification Tests
    - » Test Results Review
  - | Perform qualification tests
  - | Evaluation of Pellets with alternate pore former
  - | Verification of microstructure equivalency
    - » Data evaluation
  - | Regardless of powder source microstructure equivalency is feasible

## Development of similar microstructure

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a, c

## Development of similar microstructure

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• e.g.

a, c

# UO<sub>2</sub> Powder Differences

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a, b, c



## Microstructure of pellet with unmodified poreformer

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# Microstructure comparison

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a, b, c

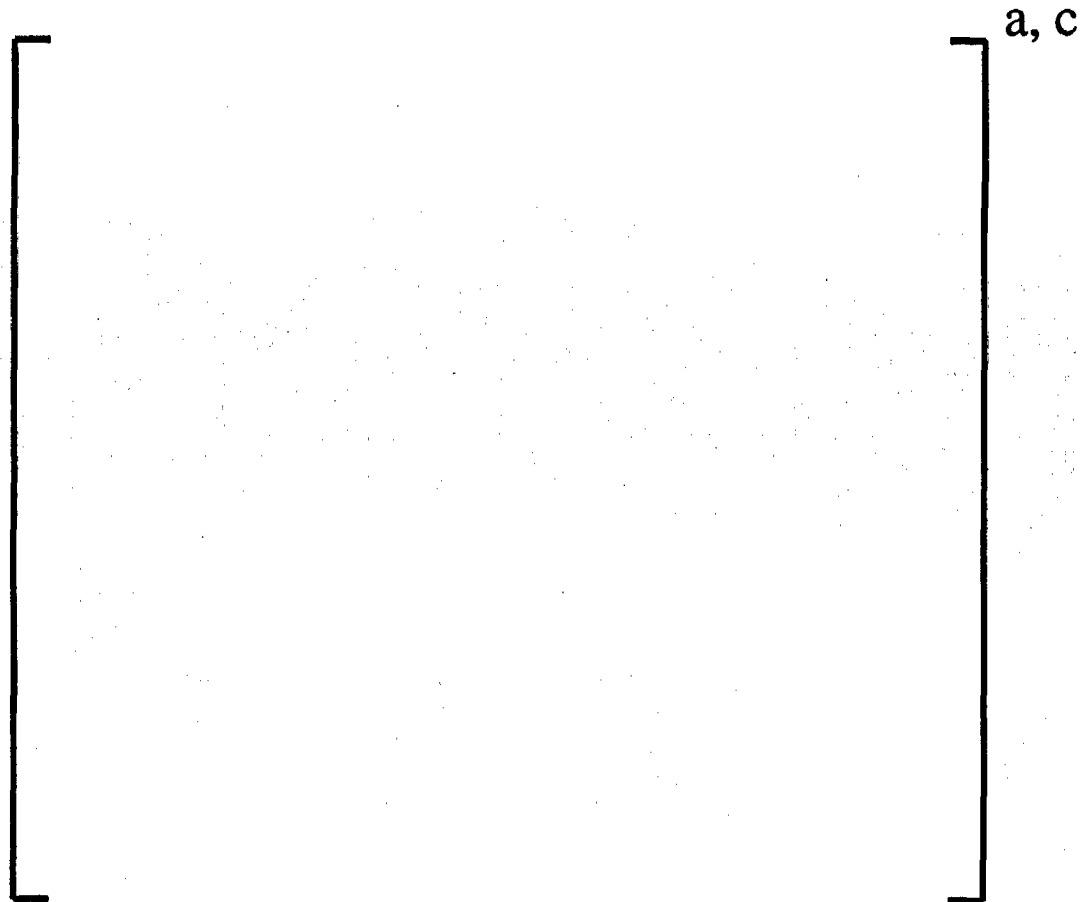
# Poreformer Development

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a, b, c

## Pellet microstructure with modified Poreformer

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# Applicability of WCAP 13589

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a, b, c

# Microstructure Comparison

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## Alternate source powder/pellets

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- Westinghouse will use powder/pellets (including pellets derived from mixtures of powders) from alternate sources that complies with approved WCAP licensing basis <sup>a, c</sup>

- Pellets that do not meet the licensing basis, will use NRC Densification model and will require clad flattening verification