



Westinghouse
Electric Corporation

Energy Systems

Box 355
Pittsburgh Pennsylvania 15230-0355

September 28, 1993
CAW-93-522

Document Control Desk
US Nuclear Regulatory Commission
Washington, DC 20555

Attention: Dr. Thomas Murley, Director

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

Subject: WCAP-13854, "Technical Support for Cycle 8 Steam Generator Interim Tube Plugging for Catawba Unit 1" (Proprietary)

Dear Dr. Murley:

The proprietary information for which withholding is being requested in the above-referenced letter is further identified in Affidavit CAW-93-522 signed by the owner of the proprietary information, Westinghouse Electric Corporation. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.790 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Duke Power Company.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-93-522, and should be addressed to the undersigned.

Very truly yours,

Nicholas J. Liparulo, Manager
Nuclear Safety and Regulatory Issues

/cld
Enclosures

cc: Kevin Bohrer/NRC (12H5)

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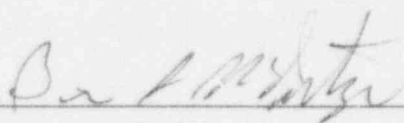
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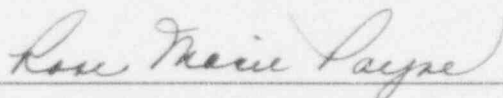
COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared Brian A. McIntyre, 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:

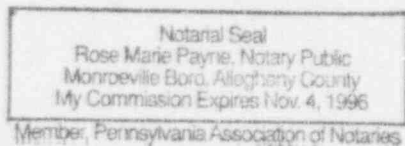


Brian A. McIntyre, Manager
Advanced Plant Safety and Licensing

Sworn to and subscribed
before me this 29 day
of September 1993



Notary Public



- (1) I am Manager, Advanced Plant Safety and Licensing, in the Nuclear and Advanced Technology Divisions, 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 "Technical Support for Cycle 8 Steam Generator Interim Tube Plugging Criteria", WCAP-13854 (Proprietary), September, 1993 for Catawba Unit 1, being transmitted by the Duke Power Company letter and Application for Withholding Proprietary Information from Public Disclosure, to Document Control Desk, Attention Dr. Thomas Murley. The proprietary information as submitted for use by Duke Power Company for Catawba Unit 1 is expected to be applicable in other

licensee submittals in response to certain NRC requirements for justification of steam generator tube interim plugging criteria.

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

- (a) Provide documentation on the potential impact of LOCA and SSE loadings on steam generator tubes.
- (b) Provide a basis for the form of the steamline break (SLB) leak rate correlation.
- (c) Provide analyses to determine tube burst probability based on relative tube/tube support plate displacements under SLB loads.
- (d) Assist the customer in obtaining NRC approval of steam generator tube interim plugging criteria.

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 requirements for licensing documentation.
- (b) Westinghouse can sell support and defense of the technology 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 methodologies 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 testing and analytical methods and performing testing.

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) 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).

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. The NRC is not authorized to make copies for the personal use of members of the public who make use of the NRC public document rooms. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.

ATTACHMENT 5

SWORN DECLARATION

I, D. L. Rehn, being duly sworn, state as follows:

1. I hold the position of Site Vice-President, Catawba Nuclear Station, for Duke Power Company. I am submitting this declaration in support of Duke Power Company's request that the Nuclear Regulatory Commission (NRC) withhold from public disclosure Attachment 5 (Calculation CNC-1227.00-00-0051, Offsite Dose From a Postulated Main Steam Line Break) of the Technical Specification amendment request being submitted to the NRC by Duke Power on this date, October 5, 1993, concerning the offsite dose analysis associated with a postulated main steam line break at the Catawba Nuclear Station. I have been specifically delegated the function of reviewing the information sought to be withheld and am authorized to apply for its withholding on behalf of the Company.
2. Attachment 5 of Duke Power Company's October 5, 1993 Catawba Technical Specification amendment request should be protected from public disclosure because it contains trade secrets and confidential commercial information concerning accident assumptions regarding defective fuel behavior and the resulting reactor coolant system activity and iodine spiking during reactor transient conditions. Attachment 5 contains proprietary models, equations, calculations, and discussions which reflect the achievements of Duke engineers in developing an alternative methodology for demonstrating that offsite dose analyses associated with a postulated main steam line break are within acceptable limits.
3. I have knowledge of and can attest to the criteria used by Duke Power Company in designating information as proprietary or confidential.
4. Attachment 5 to Duke Power Company's Technical Specification amendment request contains the following proprietary information:
 - (a) mathematical models and methodologies (and associated discussions) developed by Duke Power Company;
 - (b) technical information obtained from Halden Boiling Water Reactor Project participants under specific written agreement of nondisclosure;
 - (c) mathematical models and technical information purchased from Combustion Engineering under a written agreement of nondisclosure.

This information constitutes trade secrets and confidential commercial information of Duke Power Company.

SWORN DECLARATION

5. Proprietary information in this submittal, has been held in confidence by the Company, is of a type customarily held in confidence by the Company, and is being forwarded to the NRC in confidence. To the best of Duke Power Company's knowledge and belief, this information is not available from public sources.
6. Disclosure of the information contained in Attachment 5 of this Technical Specification amendment request could have a detrimental impact on the operations of Duke Power Company and would cause substantial harm to the competitive position of the Company, its engineering services affiliates, and the other owners of the information.
 - (a) Disclosure of mathematical models, calculations, and methodologies developed by Duke Power Company would cause substantial harm to the competitive position of the Company and its engineering services affiliates. This information was developed at considerable expense to the Company, in terms of both money and technical resources. Public disclosure of this information would preclude Duke Power, or its engineering services affiliate, Duke Engineering and Services, Inc., from recovering the costs of developing this information by marketing it to other interested entities and would negatively impact the competitive position of the Company by not requiring others to expend resources to obtain the same information.
 - (b) Attachment 5 of the amendment request also references and incorporates proprietary information obtained from a Halden Reactor Project publication. The Halden Reactor Project is an experimental reactor and research operation sponsored through a consortium of international participants. This information was provided to Duke Power Company in accordance with an explicit written notice that it should be neither disclosed nor reproduced, in whole or in part, except with the written permission of a Project member organization. While the company has obtained permission from the Electric Power Research Institute, a Halden Project participant, to reference information contained in the Project publication, that information remains proprietary and should not be disclosed to the public. Public disclosure would harm the competitive position of Halden Project participants and others who have a financial interest in the proprietary information in question. Disclosure would also damage the Company's reputation with the provider of this information, and could thereby negatively affect the Company's operations should suppliers of such important technical information be less willing to do business with the Company in the future.
 - (c) Third, Attachment 5 of the amendment request incorporates proprietary information purchased by Duke Power Company from Combustion Engineering, again under an explicit agreement of nondisclosure. Making this information available to the public at no cost would unfairly harm the competitive position of

SWORN DECLARATION

the Company which was required to purchase the information, and would harm the competitive position of the original owner of the information. In addition, public disclosure would damage the Company's reputation with the provider of this information, and could thereby negatively impact the Company's operations should suppliers of important technical information become less willing to provide such information to the Company.

7. For the above reasons, Duke Power Company is requesting that Attachment 5 of the Technical Specification amendment request dated October 5, 1993, for the Catawba Nuclear Station, be withheld from public disclosure in accordance with 10 CFR 2.790 (a)(4) and (b).

I declare under penalty of perjury that the foregoing is true and correct. Executed this fifth day of October, 1993.



D. L. Rehn
Site Vice-President
Catawba Nuclear Station

ATTACHMENT 6

CATAWBA NUCLEAR STATION RESPONSE TO ISSUES RAISED IN DRAFT NUREG-1477

On June 1, 1993 the NRC staff issued Draft NUREG-1477, Voltage-Based Interim Plugging Criteria For Steam Generator Tubes - Task Group Report, which discusses the technical basis for and outstanding issues related to the interim approval of voltage-based interim plugging criteria (IPC) for outside diameter stress corrosion cracking (ODSCC) of steam generator tubes and provides conclusions and recommendations concerning implementation of these criteria. This draft report recommends that licensees provide information on various programs, procedures, and policies to allow for a thorough review of an IPC request. The following is Duke Power's response to these issues as they relate to the enclosed IPC renewal request. The following information represents Catawba's present programs and methodology and is subject to change.

1. **Actions being taken to mitigate the corrosive environment in the TSP crevices and to ensure that future growth rates and crack morphologies will be within expected bounds.**

Catawba Nuclear Station has implemented various chemistry programs and practices to mitigate the formation and development of outside diameter stress corrosion cracking (ODSCC) at the steam generator tube support plates (TSPs). These programs are fundamentally built on the concept of ALARA steam generator (S/G) chemistry with additional measures introduced to mitigate specific S/G corrosion concerns. These programs and practices are as follows:

Industry Guidelines

- Full compliance with all EPRI Secondary Chemistry Guidelines, Revision 3.

S/G Tubing Crevice Fouling

- Maintaining hotwell dissolved oxygen (DO) concentrations < 3 ppb.
- Use of advanced amines such as ethanolamine for secondary system pH control.
- Use of full-flow condensate polishers for reduced corrosion product transport to the S/Gs.

CATAWBA NUCLEAR STATION RESPONSE TO ISSUES RAISED IN DRAFT NUREG-1477

S/G Crevice pH

- Addition of boric acid for mitigation of S/G TSP ODSCC per the EPRI boric acid applications guidelines. Catawba utilizes both low power S/G boric acid soaks during startup and full power operation boric acid chemistry.
- Perform S/G hideout return studies during shutdown to assess the impact of operating chemistry on S/G crevice chemistry and potential formation of caustic crevices which can cause TSP ODSCC.

S/G Sodium Reduction

- Modified S/G blowdown demineralizer cation:anion resin ratios to minimize S/G bulk water sodium and control cation:anion molar ratio.
- Installed a reverse osmosis unit in the makeup water system to reduce sodium input to the secondary system.
- Revised condensate resin specifications to lower sodium and chloride limits.

S/G Electrochemical Potential (ECP) Reduction

- Removal of 90:10 Cu:Ni Moisture Separator Reheater (MSR) tube bundles are scheduled for the upcoming Unit 1 End Of Cycle (EOC) 7 refueling outage. Copper has been identified as an oxidant capable of increasing the ECP of the S/G alloy 600 tubing to levels of increased SCC.
- Use of high hydrazine concentrations for maintaining reducing conditions in the S/Gs and passivation of system piping and components.

Currently, the General Office and Catawba Chemistry groups are pursuing several R&D type projects to improve the S/G chemistry corrosion control program. They are as follows:

- Installation of ECP monitors in the Catawba feedwater system is planned. These ECP monitors will be used to measure changes in the reducing conditions of the feedwater system.
- Addition of titanium dioxide as a S/G tubing crack inhibitor is also planned.

CATAWBA NUCLEAR STATION RESPONSE TO ISSUES RAISED IN DRAFT NUREG-1477

- Crev-Sim, a computer program which models contaminant ingress into S/G crevices, has been installed and will be used to track S/G crevice pH.
- High all-volatile treatment (AVT) with a pH of 10 in the feedwater chemistry will be investigated once the Unit 1 MSR tube bundles are removed.

2. Description of the site-specific leak rate monitoring procedures and an assessment of their effectiveness for ensuring the timely detection, trending, and response to rapidly increasing leaks.

Catawba Nuclear Station utilizes a combination of radiation monitors and an Operator Aid Computer (OAC) program for primary to secondary leak rate monitoring. Administrative controls are in place through Station Directive 3.0.13, Enhanced Primary To Secondary Leak Rate Monitoring Program, that require shutdown to Mode 3 within 12 hours whenever leak rate exceeds 0.091 gpm (130 gpd). Separately, a change in total leak rate of 0.035 gpm (50 gpd) or greater in less than one hour would require shutdown to Mode 3 within 6 hours.

Both the estimated leak rate and the change in total leak rate are monitored constantly by the OAC. Air ejector radiation monitor count rate is continuously updated on the OAC. This count rate and other variables (reactor coolant Xe-133 equivalent activity, air ejector flow rate) are inputs to an OAC program that reports estimated leak rate on a continuous basis. The OAC provides a warning alarm when this leak rate reaches 0.035 gpm. The OAC separately monitors the rate of change of the total leak rate and alerts the operators when a change of 0.035 gpm or greater has occurred in less than one hour.

The air ejector radiation monitor alarm setpoint is 0.007 gpm (10 gpd) above the current leak rate. Station Directive 3.0.13 outlines various actions to be taken by Operations, Chemistry, and Radiation Protection based on estimated leak rate. The steam line radiation monitor alarm setpoint (based on N-16 response) is 10 gpm.

The air ejector radiation monitor provides early indication of leakage (0.007 gpm). For slow opening leaks, sampling and monitoring of secondary cation columns provides a reasonable means for identifying the leaking generator prior to exceeding the administrative limit for shutdown (0.091 gpm). For rapidly increasing leaks, N-16 response on the main steam line radiation monitors provides an alert indication at 6.67 gpm and a high radiation alarm at 10 gpm. For fast developing leaks, the N-16 response of the main steam line radiation monitors will provide quick indication to the operators of the affected generator.

CATAWBA NUCLEAR STATION RESPONSE TO ISSUES RAISED IN DRAFT NUREG-1477

Availability for equipment associated with primary to secondary leak rate monitoring is as follows:

- Operator Aid Computer (OAC) > 99 %
- Unit 1 Steam Line Monitors > 99 %
- Unit 1 Air Ejector Monitor > 96 %
- Unit 2 Steam Line Monitors > 99 %
- Unit 2 Air Ejector Monitor > 99 %

3. **Upgrade guidelines for the eddy current test and data analysis procedures to ensure the reliable detection of low voltage signals while minimizing voltage response and voltage measurement variability.**

The Catawba eddy current test and data analysis procedures are being modified to ensure consistency with the NDE data acquisition and analysis guidelines given in Appendix A of WCAP-13854.

4. **Implement a data analyst training and qualification program to ensure that voltage measurement variability among different analysts is within the assumed distribution.**

Catawba's data analyst training and qualification program is being modified to reflect the guidance given in the revised eddy current test and data analysis procedures mentioned above.

5. **S/G tubes should be removed at each outage to verify both the validity of the empirical correlation and to confirm that the dominant form of tube degradation is ODSCC.**

Catawba does not intend to pull any tubes during the upcoming Unit 1 End-of-Cycle 7 refueling outage. The basis for this position is given by Westinghouse in WCAP-13854, Section 3.3. Duke Power Company fully supports this position.

ATTACHMENT 4