

November 5, 2003

NRC 2003-0105
10 CFR 50, Appendix A, GDC 4
10 CFR 50.90

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

Point Beach Nuclear Plant Units 1 and 2
Dockets 50-266 and 50-301
License Nos. DPR-24 and DPR 27
Request For Review Of Dynamic Effects Design Basis And Leak-Before-Break Analysis

As required by 10 CFR 50, Appendix A, General Design Criterion 4, and in accordance with 10 CFR 50.90, Nuclear Management Company, LLC (NMC) requests review and approval of the enclosed evaluations. These evaluations demonstrate that dynamic effects of reactor coolant system (RCS) primary loop pipe breaks need not be considered in the structural design basis of the Point Beach Nuclear Plant (PBNP), Units 1 and 2.

Westinghouse performed a leak-before-break (LBB) analysis for PBNP Units 1 and 2 primary loop piping in 1996, in support of unit 2 steam generator replacement. That analysis demonstrated continued compliance with LBB technology for the PBNP RCS piping. However, that analysis was not submitted for NRC review and approval. In 2003, Westinghouse revised the PBNP LBB evaluation to bound several plant initiatives. The revised evaluation is being submitted.

Enclosed for Commission review and approval are the following evaluations:

WCAP-14439-P, Rev. 2, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for Point Beach Nuclear Plant Units 1 and 2 for the Power Uprate and License Renewal Program", dated September 2003 (Proprietary);

WCAP-14439-NP, Rev. 0, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for Point Beach Nuclear Plant Units 1 and 2 for the Power Uprate and License Renewal Program", dated September 2003 (Non-Proprietary).

Also enclosed are a Westinghouse authorization letter, accompanying affidavit, Proprietary Information Notice and Copyright Notice, as applicable, for the above reports.

Since the report listed above as proprietary contains information proprietary to Westinghouse Electric Company, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit 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 Section 2.790 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.790.

Correspondence with respect to the copyright or proprietary aspects of the above reports, or the supporting Westinghouse affidavit, should reference the appropriate authorization letter (CAW-03-1713) and be addressed to H. A. Sepp, Manager of Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

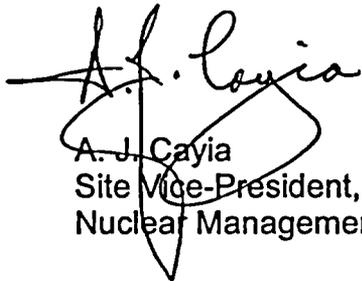
Enclosure 1 to this letter provides a description, justification, and a significant hazards determination for the revised analysis.

These analyses provide a basis for additional licensing actions that are being prepared for submittal to NRC. To facilitate coordination of NRC review of the related licensing actions and these analyses, NMC requests approval of the analyses by June 2004. If the expected review schedule of the related licensing actions were to become extended, then the schedule for approval of this submittal may also be deferred accordingly.

This letter contains no new commitments and no revision to existing commitments.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Wisconsin Official.

I declare under penalty of perjury that the foregoing is true and accurate. Executed on November 5, 2003.



A. J. Cayia
Site Vice-President, Point Beach Nuclear Plant
Nuclear Management Company, LLC

Enclosures

- cc: (w/enclosures)
Project Manager, Point Beach Nuclear Plant, USNRC
- cc: (w/o enclosures)
Regional Administrator, Region III, USNRC
Resident Inspector - Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE 1
REQUEST FOR REVIEW OF DYNAMIC EFFECTS DESIGN BASIS
AND LEAK-BEFORE-BREAK ANALYSIS

1.0 INTRODUCTION

As required by 10 CFR 50 Appendix A, General Design Criterion (GDC) 4, and in accordance with 10 CFR 50.90, Nuclear Management Company, LLC (NMC) requests review and approval of the revised analysis supporting the Point Beach Nuclear Plant (PBNP) dynamic effects design basis for primary coolant piping. This analysis continues to demonstrate that the probability of rupture of the reactor coolant system (RCS) piping is extremely low and that leak detection capability is sufficient to detect leakage and allow appropriate action to be taken to prevent such an unlikely event from occurring. Thus, the analysis demonstrates that dynamic effects of RCS primary loop pipe breaks need not be considered in the structural design basis of PBNP, Units 1 and 2.

2.0 BACKGROUND

GDC 4, "Environmental And Dynamic Effects Design Bases," requires that structures systems and components important to safety be protected from the dynamic effects of postulated pipe ruptures. GDC 4 further states, "Nuclear power units may be excluded from this design bases when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system pipe rupture is extremely low under conditions consistent with the design basis of the piping."

Analyses had been performed by Westinghouse and reviewed and approved by the Nuclear Regulatory Commission (NRC) that concluded that asymmetric blowdown loads resulting from double-ended pipe breaks in main coolant loop piping need not be considered as a design basis for Westinghouse Owner's Group plants, including PBNP, Units 1 and 2. The evaluation was approved as documented in Generic Letter 84-04, "Safety Evaluation of Westinghouse Topical Reports Dealing With Elimination Of Postulated Pipe Breaks In PWR Primary Main Loops," dated February 1, 1984. As PBNP meets the conditions of the safety evaluation, the consideration of the dynamic effects of primary loop pipe ruptures was eliminated as a design requirement for PBNP upon revision of GDC 4 effective November 27, 1987.

Westinghouse performed a leak-before-break (LBB) analysis for PBNP Units 1 and 2 primary loop piping in 1996, in support of unit 2 steam generator replacement. That analysis demonstrated continued compliance with LBB technology for the PBNP reactor coolant system piping. However, that analysis was not submitted for NRC review and

approval. In 2003, Westinghouse revised the PBNP LBB evaluation to bound several plant initiatives. The revised evaluation is being submitted.

The following Westinghouse technical justification reports provided the analysis.

WCAP-14439-P, Rev. 2, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for Point Beach Nuclear Plant Units 1 and 2 for the Power Uprate and License Renewal Program", dated September 2003 (Proprietary);

WCAP-14439-NP, Rev. 0, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for Point Beach Nuclear Plant Units 1 and 2 for the Power Uprate and License Renewal Program", dated September 2003 (Non-Proprietary).

Our analysis of this condition concluded that a sufficiently large amount of margin exists. The revised analysis demonstrates the continued acceptability of applying "leak-before-break" to RCS piping. Therefore, this condition does not significantly affect reactor safety.

3.0 DESCRIPTION OF CHANGE

NMC proposes to revise the dynamic effects design basis analysis for the primary loop piping at PBNP to incorporate several plant initiatives. The NRC has accepted the approach taken, as documented in Generic Letter 84-04, "Safety Evaluation of Westinghouse Topical Reports Dealing With Elimination Of Postulated Pipe Breaks In PWR Primary Main Loops," dated February 1, 1984.

The revised analysis is based on a plant specific evaluation that demonstrates compliance with LBB technology for the PBNP RCS piping. This analysis documents the plant specific geometry, loading, and material properties used in the fracture mechanics evaluation and bounds license renewal and power uprate programs. End of extended life fracture toughness, considering thermal aging, was determined for each heat of material. Enveloping critical locations were determined at which LBB crack stability evaluations were made. Large margins for the postulated flaw sizes were demonstrated against flaw instability. Using bounding plant specific transients and cycles, fatigue crack growth for end of extended license was shown to be acceptable for the primary loops.

4.0 ASSESSMENT

The technical justification for the revised LBB analysis is contained in the enclosed Westinghouse reports. The revised LBB analysis provides technical justification for continued exclusion of the dynamic effects associated with postulated pipe ruptures and continues to demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Determination

As required by 10 CFR 50 Appendix A, General Design Criterion 4, and in accordance with 10 CFR 50.90, NMC requests review and approval of the revised analysis supporting the PBNP dynamic effects design basis for primary loop piping. This analysis continues to demonstrate that the probability of rupture of the reactor coolant system (RCS) piping, is extremely low and that leak detection capability is sufficient to detect leakage and allow appropriate action to be taken to prevent such an unlikely event from occurring. Thus, the evaluation demonstrates the acceptability of applying "leak-before-break" to this piping for PBNP.

NMC has evaluated the proposed amendment in accordance with 10 CFR 50.91 against the standards in 10 CFR 50.92 and has determined that the operation of PBNP in accordance with the proposed amendments presents no significant hazards. Our evaluation against each of the criteria in 10 CFR 50.92 follows.

- 1. Operation of PBNP in accordance with the proposed amendments does not result in a significant increase in the probability or consequences of any accident previously evaluated.**

The proposed change revises the analysis supporting the PBNP dynamic effects design basis for primary loop piping. The proposed change does not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, or the manner in which the plant is operated and maintained. The proposed change does not alter or prevent the ability of structures, systems, and components from performing their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. The proposed change does not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. Further, the proposed change does not increase the types or amounts of radioactive effluent that may be released offsite, nor significantly increase individual or cumulative occupational/public radiation exposures. The proposed change is consistent with safety analysis assumptions and resultant consequences. Therefore, it is concluded that this change does not significantly increase the probability of occurrence of an accident previously evaluated.

- 2. Operation of PBNP in accordance with the proposed amendments does not result in a new or different kind of accident from any accident previously evaluated.**

The proposed change revises the analysis supporting the PBNP dynamic effects design basis for primary loop piping. The changes do not impose any new or different requirements or eliminate any existing requirements. The changes do

not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Operation of PBNP in accordance with the proposed amendments does not result in a significant reduction in a margin of safety.

The proposed change revises the analysis supporting the PBNP dynamic effects design basis for primary loop piping. All the recommended margins regarding leak-before-break conditions (margin on leak rate, margin on flaw size, and margin on loads) are satisfied for the primary loop piping. The proposed change does not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. The setpoints at which protective actions are initiated are not altered by the proposed changes. Sufficient equipment remains available to actuate upon demand for the purpose of mitigating an analyzed event.

Conclusion

Operation of PBNP in accordance with the proposed amendment will not result in a significant increase in the probability or consequences of any accident previously analyzed; will not result in a new or different kind of accident from any accident previously analyzed; and, does not result in a significant reduction in any margin of safety. Therefore, operation of PBNP in accordance with the proposed amendment does not result in a significant hazards determination.

5.2 Applicable Regulatory Requirements

Nuclear power plant licensees have, in general, been required to consider the dynamic effects that could result from the rupture of sections of high energy piping (fluid systems that during normal plant operations are at a maximum operating temperature in excess of 200°F and/or a maximum operating pressure in excess of 275 psig). This requirement has been formally included in 10 CFR Part 50, Appendix A, GDC 4, which states, "[s]tructures, systems, and components important to safety....shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit."

The NRC modified GDC 4 to permit the dynamic effects of some high energy piping ruptures to be excluded from facility licensing bases based upon the demonstration of an extremely low probability of piping system rupture. Consistent with this modification to GDC 4, the NRC accepted the leak-before-break (LBB) analysis methodology as an acceptable means by which this extremely low probability of piping system rupture could be demonstrated. The philosophy of LBB behavior for high energy piping systems was developed by the NRC in the early 1980s, used in

certain evaluations stemming from Unresolved Safety Issue A-2, "Asymmetric Blowdown Loads on PWR Primary Systems," and then subsequently expanded for application toward resolving issues regarding defined dynamic effects from high energy piping system ruptures.

NMC concludes that the revised analysis is in accordance with 10 CFR Part 50, Appendix A, GDC 4, in that the probability of piping system rupture is extremely low under conditions consistent with the design basis for the piping. The revised analysis thus continues to be compliant with the above regulatory requirements.

5.3 Commitments

There are no actions committed to by NMC in this document. Any statements in this submittal are provided for information purposes and are not considered to be commitments.

6.0 ENVIRONMENTAL EVALUATION

NMC has determined that the information for the proposed amendment does not involve a significant hazards consideration, authorize a significant change in the types or total amounts of effluent release, or result in any significant increase in individual or cumulative occupational radiation exposure.

Accordingly, this proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with this proposed amendment.

ENCLOSURE 2

WCAP-14439-P, Rev. 2, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for Point Beach Nuclear Plant Units 1 and 2 for the Power Uprate and License Renewal Program", dated September 2003 (Proprietary);

WCAP-14439-NP, Rev. 0, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for Point Beach Nuclear Plant Units 1 and 2 for the Power Uprate and License Renewal Program", dated September 2003 (Non-Proprietary);

Westinghouse Authorization Letter (CAW-03-1713);

Affidavit;

Proprietary Information Notice;

Copyright Notice



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e-mail: Sepp1ha@westinghouse.com

Our ref: CAW-03-1713

Date: September 29, 2003

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-14439-P, Rev. 2, (Proprietary), "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for the Point Beach Nuclear Plant Units 1 and 2 for the Power Uprate and License Renewal Program"

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-03-1713 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. 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 Nuclear Management Company.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-03-1713 and should be addressed to the undersigned.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. S. Galembush'.

J. S. Galembush, Acting Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: J. Dyer
D. Holland
B. Benney
E. Peyton

bcc: H. A. Sepp (ECE 4-7A) 1L
R. Bastien, 1L, 1A (Nivelles, Belgium)
C. Brinkman, 1L, 1A (Westinghouse Electric Co., 12300 Twinbrook Parkway, Suite 330, Rockville, MD 20852)
RCPL Administrative Aide (ECE 4-7A) 1L, 1A (letter and affidavit only)

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. S. Galembush, 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:

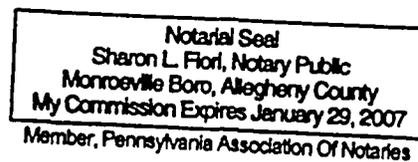


J. S. Galembush, Acting Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed
before me this 30th day
of September, 2003



Notary Public



- (1) I am Acting Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, 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 in WCAP-14439-P, Rev. 2, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for the Point Beach Nuclear Plant Units 1 and 2 for the Power Uprate and License Renewal Program," (Proprietary), dated September 2003 for the Point Beach Nuclear Plant Units 1 and 2, being transmitted by the Nuclear Management Company letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted for use by Westinghouse Electric Company LLC for Point Beach Nuclear Plant Units 1 and 2 is expected to be applicable for other licensee submittals in response to certain NRC requirements for justification of continued safe operation of Point Beach Nuclear Plant Units 1 and 2.

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

- (a) Assess the technical justification for eliminating the Large Primary Loop Pipe Rupture as the Structural Design Basis for the Power Uprate and License Renewal Program.
- (b) Assist the customer in obtaining NRC approval.

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.
- (c) Westinghouse can sell support and defense of continued safe operation by eliminating the Large Primary Loop Pipe Rupture as the Structural Design Basis for the Power Uprate and License Renewal Program.
- (b) The information requested to be withheld reveals the distinguishing aspects of a methodology which was 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 support documentation 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.