**ENCLOSURE 5**

# LICENSE AMENDMENT REQUEST REGARDING TUBESHEET INSPECTION DEPTH FOR STEAM GENERATOR TUBE INSPECTIONS AT PALISADES NUCLEAR PLANT

**NON-PROPRIETARY VERSION**

LTR-CDME-06-80-P, 'PALISADES TUBESHEET INSPECTION DEPTH' TO THE PALISADES NUCLEAR PLANT," DATED MAY 2006

18 Pages Follow

**LTR-CDME-06-80-NP, Revision 1**

# Palisades Tubesheet Inspection Depth

**May 2006**

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# DEFINITIONS

BET – Bottom of the explansion transition.

BTA – Bore Trepanning Association process for machine boring. A process improvement employed for tubesheet drilling applicable to the Palisades replacement steam generators

Collar - Tubesheet mockups were fabricated from tubesheet bar stock material SA-508, Class 3. The machined bar stock in which a tube was explosively expanded was referred to in this project as a collar.

C* - The CE design explansion joint inspection distance.

Explansion – Explosive expansion of tubing into a Combustion Engineering steam generator tubesheet.

[

] a,c,e

Joint – The tube and tubesheet contact surface area created by the explansion process.

Maximum load – The largest force encountered while pulling the tube out of the tubesheet.

NMC – Nuclear Management Company

NODP – Normal operating differential pressure = RCS pressure minus SG pressure at normal full power operating conditions.

[

] a,c,e

RAI - Request for additional information.

Rough bore – The machined surface on the inside diameter of each laboratory specimen rough bore collar was drilled on a lathe to a surface roughness not greater than 250 micro-inches (AA) to mockup the gun-drilled tubesheet hole surface. Not applicable to Palisades.

SLB or MSLB – The design basis event known as main steam line break.

Smooth Bore - The machined surface on the inside diameter of each laboratory specimen smooth bore collar was drilled on a lathe to a surface roughness not greater than 250 micro-inches (AA) and then reamed to increase smoothness to mockup the BTA process tubesheet hole surface. Applicable to Palisades.

TTS – Top of the tubesheet.

# 1.0 INTRODUCTION

## 1.1 BACKGROUND

The PWR Owners Group program to provide recommended tubesheet region inspection lengths, for plants with Combustion Engineering supplied steam generators with explosive expansions, was documented in report WCAP-16208-P, Reference 1. This inspection length is commonly referred to as C* ("C-Star"). Reference 1 was previously submitted to the NRC by other participants within the PWR Owners Group program.

During a telephone conference with NMC, NRC, and Westinghouse on March 14, 2006 regarding a pending license amendment request (LAR) by NMC concerning application of the C* criterion, the NRC requested that the C* inspection distance include additional allowances for (1) the Palisades reactor coolant hot leg temperature (as compared to the 600°F value used in the WCAP-16208-P Revision 1 analysis) and (2) any differences associated with use of first slip pullout loads compared to peak pullout loads of test specimens described in WCAP-16208-P Revision 1.

Similar analyses addressing the above two issues have been performed for other utilities that intend to implement C*. These analyses have been provided to the NRC through Reference 3 and other similar documents. The methodology employed for the Palisades analysis is essentially the same as these other analyses.

The purpose of this document is to describe the calculation methodology that supports the revised C* distance applied for the Palisades REFOUT 18 (Spring 2006) steam generator inspection and future inspection outages with these replacement steam generators.

## 1.2 SUMMARY

The required C* inspection distance has been calculated to include the NRC requested effects. The updated C* distance is 12.5 inches below the bottom of the tube to tubesheet expansion transition. This value applies to each tube inspected at the hot leg tubesheet region using the Plus Point™ coil for the Palisades steam generator tube inspection.

Table 2-1, Table 6-15 and the Executive Summary table of Reference 1 are thus amended as follows:

Table 2-1 from WCAP-16208-P: Leakage Based Inspection Length Including Tubesheet Deflection and NDE Corrections (Amended for Palisades Only)

| Plant | Leak Rate Based Inspection Length Adjusted for TS Dilation (inches) | Leak Rate Based Inspection Length Adjusted for TS Dilation and NDE (inches) |
|---|---|---|
| Palisades | 11.3 ⇒ 12.2 | 11.6 ⇒ 12.5 |

Table 6-15 from WCAP-16208-P: Inspection Length Based on Leakage (Amended for Palisades Only)

| Plant | Burst Based Inspection Length Corrected for Dilation and NDE (in.) | Uncorrected Joint Length that Meets Leakage Criteria (inches) | Interpolated Leak Rate Based Inspection Length Corrected for Dilation (in.) | Leak Rate Based Inspection Length Corrected for Dilation and NDE (in.) |
|---|---|---|---|---|
| Palisades | 4.6 | 6.56 ⇒ 6.60 | 11.3 ⇒ 12.2 | 11.6 ⇒ 12.5 |

Executive Summary Table from WCAP-16208-P (Amended for Palisades Only)

| Plant | Leak Rate Based Inspection Length Corrected for Dilation and NDE (in.) |
|---|---|
| Palisades | 11.6 ⇒ 12.5 |

## 1.3 QUALITY ASSURANCE

The work that is presented in this document was completed and reviewed under the requirements of the Westinghouse Quality Assurance Program (Reference 2).

# 2.0 CALCULATION METHODOLOGY

## 2.1 BACKGROUND

WCAP-16208-P, Revision 1 (Reference 1) provided the general methodology to determine the joint length that meets the leakage criteria. The applicable sections from this reference are as follows:

- Section 4.6 of Reference 1 describes how temperature affects the leak rate.
- Section 4.8 of Reference 1 describes how the leak rate data is evaluated to provide the joint length at which the leak rate criteria are met (prior to adjustments for NDE error and tubesheet hole dilation).
- Section 5.3 of Reference 1 describes how the pullout test data was analyzed.
- Section 6.3 of Reference 1 describes how tubesheet hole dilation under accident conditions is accounted for.
- Section 7.4 of Reference 1 describes how the NDE axial position uncertainty was developed. The value of [ ]a,c,e remains unchanged for this calculation note.

LTR-CDME-05-257, Revision 1 (Reference 3) provides revised joint lengths under a "first slip" pullout load criteria and a lower temperature, similar to the methodology that is employed in this calculation note. The applicable sections from this reference are as follows:

- Section 1.1 of Reference 3 provides the conservative minimum detectable leak rate of [ ]a,c,e from the C* leak rate tests.
- Section 2.1.2 of Reference 3 provides relevant equations for flexibility.
- Section 2.5 of Reference 3 demonstrates how the temperature correction (Section 4.6 of Reference 1) affects the evaluation of the leak rate data.
- Section 2.6 of Reference 3 describes how "first slip" criteria affect the pullout data. This analysis is performed for plants that had a "rough bore" tubesheet hole. Palisades is a "smooth bore" tubesheet hole plant. The analysis of smooth bore pullout data differs somewhat from the rough bore pullout data.

## 2.2 FIRST SLIP PULLOUT LOADS

The pullout load data that was used in WCAP-16208-P (Reference 1) were taken from Reference 4. A review of the Reference 4 data determined that 'maximum load' data was used. The 'maximum load' is simply the largest resistive force encountered during tensile testing of explanded tube in tubesheet specimens. The use of the 'maximum load' was consistent with the Reference 4 approach. The data that is plotted in Figures 5-1 through 5-3 of Reference 1 is based on the 'maximum load' encountered during each pullout test.

The C* criterion involves satisfaction of two separate expanded tube length requirements; the pullout length requirement, or the length of expanded tube that precludes tube ejection from the tubesheet hole, and the leakage-limited length, or the length of expanded tube that implies a specified amount leakage from an assumed circumferentially separated tube, separated at just below the leakage-limited inspection depth. In Reference 1, the leakage-limited inspection length bound the pullout length requirement by a considerable margin.

The leakage-limited inspection depth provided in WCAP-16208-P uses the pullout force to assess the contact pressure of the joint, which in turn is used to provide a tubesheet hole dilation adjustment to the depth at which the leak rate criteria is met. For this purpose, a 'first slip' criterion can be considered for evaluation of tube to tubesheet contact pressures. Use of first slip loads is considered conservative as all samples experienced greater resistive load capability during the tensile test. The determination of the point at which the tube actually moves relative to the tubesheet is complicated by elongation of the tube prior to movement, gripper slippage, and (in the case of the Boston Edison samples) an obstructed view of the top of the tubesheet region. Reference 5 uses a definition that "Pullout was conservatively treated as tube slippage relative to the tubesheet of 0.25 inches." This length is understood to be applicable after gripper slippage had been accounted for.

The Palisades steam generator tubesheet holes are of the smooth bore type. However, a discussion of rough bore holes is relevant to the discussion of smooth bore holes.

### 2.2.1 Rough Bore Data

Section 2.6 of Reference 3 provides a discussion of the application of the "first slip" criterion to the rough bore data. Figure 1 presents a plot comparing the first slip data (from Table 5 in Reference 3) with the relevant maximum load data (from Table 5-2 of Reference 1). [

]a,c,e

a,b,c

[

]

Figure 1: Relationship between First Slip and Maximum Load for Rough Bore Samples

### 2.2.2 Smooth Bore Data

The smooth bore pullout data provided in Table 5-3 of WCAP-16208-P was obtained directly from Tables 4-1 and 4-4 of Reference 4. Table 1 lists the "maximum load" and "first slip" smooth bore data. [

][a,c,e] Figure 2 presents a plot of how the Ringhals "first slip" data was projected.

Table 1: Smooth Bore Pullout Test "Maximum Load" and "First Slip" Loads (Room Temperature, Ambient Internal Pressure)

a,b,c

| Sample Source | Specimen Number | Joint Length (in) | Maximum Load (lbs) | First Slip (lbs) |
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a,b,c

Figure 2: Projection of First Slip Load for Smooth Bore Samples

Figure 3 presents a plot of the Table 1 smooth bore data. None of the smooth bore sample data exceeded the yield strength of the tube. The lower 95% prediction is also included.

a,b,c

Figure 3: First Slip Pullout Force for 42 mil Wall Smooth Bore Tests

## 2.3 TEMPERATURE CORRECTION FOR UNDILATED JOINT LENGTH

The effect of temperature on the leak rate from a tubesheet joint without tubesheet hole dilation was experimentally quantified in WCAP-16208-P. The effect of temperature on tubesheet hole dilation is accounted for analytically (see Section 2.4 of this document).

Section 4.6 of Reference 1 provides the experimentally determined relationship that describes how temperature affects the leak rate. This equation is used to adjust the leak rate data in Table 4-7 of Reference 1. The analysis that is described in Section 4.8 of Reference 1 is performed using the temperature-adjusted data to obtain the joint length that would meet the leakage criteria for an undilated tubesheet hole.

WCAP-16208-P used a generic hot leg temperature of 600°F to determine the leakage-limited inspection distance. The Palisades hot leg temperature is 583°F (Reference 6). Section 2.5 of

Reference 3 demonstrated how the leak rate adjustment was applied for a hot leg temperature of 596.5°F. When a similar adjustment is made for a hot leg temperature of 583°F, then [

]a,c,e

Table 2: WCAP-16208-P, Table 4-7: Transformed Leak Rate Data: Revised for Change of Temperature from 600°F to 583°F

a,c,e

| Index | Sample | Temperature Corrected Data<br>L<br>Joint Length (inches) | Temperature Corrected Data<br>Q<br>Leak Rate at 583°F (gpm) | Transformed<br>$L-L_{avg}$<br>Joint Length (inches) | Transformed<br>$Q-Q_{avg}$<br>Leak Rate (gpm) |
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Calculations of the 'Uncorrected Joint Length that Meets Leakage Criteria', then follow the methodology provided in Section 4.8 of Reference 1. The result is a minor revision to Figure 4-4 of WCAP-16208-P, as is shown in Figure 4. Using the leakage criteria as the y-axis Leak Rate value and reading the corresponding joint length off of the 95% confidence interval curve yields the 'Uncorrected Joint Length that Meets Leakage Criteria'.

a,b,c

Figure 4: Revised WCAP-16208-P, Figure 4-4: Leak Rate vs. Joint Length at 583°F, ΔP=SLB

The result is that the 'Uncorrected Joint Length that Meets Leakage Criteria', that was provided in Tables 4-9 and 6-15 of WCAP-16208-P (at the assumed leak criteria of 0.1 gpm/SG), changes from 6.56 inches to 6.60 inches when using the hot leg temperature of 583°F and the number of actual in-service tubes (7846 tubes/SG – Reference 8). Using the conservative minimum detectable leak rate of [ ][a,c,e], the 'Uncorrected Joint Length that Meets Leakage Criteria' is 6.61 inches at 583°F.

## 2.4 TEMPERATURE CORRECTION TO DILATION ADJUSTMENT

The tubesheet hole dilation correction at the lower hot leg temperature is altered by (1) the use of first slip pullout data (see Section 2.2), (2) internal pressure transmittal, and (3) differential thermal expansion. Equations for calculating the transmittal of internal pressure to the tube-tubesheet interface and the contact pressure from differential thermal expansion are discussed in detail in Reference 3, which were derived from equations for radial displacement in thick-walled cylinders (Reference 7).

Sections 2.1 and 2.5 of Reference 3 describe the equations applied for determination of $P_P$, the pressure induced load, and $P_T$, the thermal induced contact load, respectively. When considering a hot leg temperature of 583°F instead of 600°F, the value for $P_P$+$P_T$ is decreased by [ ]a,c,e

## 2.5 CALCULATION OF INSPECTION DISTANCE

Incorporating the "first slip" lower bound of Figure 3 and the 583°F value for the 'RCS Pressure and Diff Thermal Axial Force' (see Section 2.4) into Table 6-11 of Reference 1 yields a mechanism to adjust the 'Uncorrected Joint Length that Meets Leakage Criteria' (see Section 2.3) for tubesheet hole dilation.

Table 3 presents a revision to Table 6-11 of Reference 1 that accounts for "first slip" pullout data and a 583°F hot leg. Section 2.3 presented 'Uncorrected Joint Length that Meets Leakage Criteria' lengths of 6.60 inches and 6.61 inches for leakage criteria of 0.1 gpm/SG for 7846 tubes/SG and [ ]a,c,e respectively. Looking up each 'Uncorrected Joint Length that Meets Leakage Criteria' in the rightmost column of Table 3, and interpolating to find the result in the leftmost column of the table, produces 'Joint Length that Meets Leakage Criteria' values of 12.24 inches and 12.25 inches, respectively. Adding NDE axial position uncertainty of [ ]a,c,e to both values yields a leakage-based inspection length of 12.5 inches for both criteria. Note that this length is measured from the bottom of the expansion transition, not the top of the tubesheet.

The most limiting specimen shown in Figure 3 has a pullout load of [ .]a,c,e Section 7.0 of Reference 6 notes that NODP is 1334 psid, thus 3NODP is 4002 psid and the required pullout load criteria for a [ ]a,c,e Repeating the analyses presented in Table 6-5 of Reference 1 using the quarter-inch incremental contact loads for the fourth column of values, yields a required engagement length of less than 5.25 inches to resist the 3NODP pullout load of [ ]a,c,e (see Table 4).

After the [ ]a,c,e NDE axial position uncertainty is included, the leakage-based inspection length bounds the required engagement length to resist the 3NODP pullout load for the most limiting specimen using load at first slip.

Table 3: WCAP-16208-P, Table 6-11: Effect of Tubesheet Deflection for Palisades Steam Generators: Revised for Use of First Slip Loads and 583°F Hot Leg

a,b,c

| Depth in Tubesheet (in) | Axial Force (lbf) | RCS Pressure and Diff. Thermal Axial Force (lbf) | Initial Axial Force (lbf) | Dilation Axial Force (lbf) | Net Axial Force (lbf) | Net / Initial Ratio | Equiv. No-Dilate Length (in) | Cum. No-Dilate Length (in) |
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Table 4: Tubesheet Deflection Analysis Results, Reduction in Contact Load for Palisades Steam Generator: Limiting Load Cases

| | | | | | First Slip Limiting Sample | | |
|---|---|---|---|---|---|---|---|
| **Depth into Tubesheet (inches)** | **Fx Dilation Load (lbf)** | **Fz Dilation Load (lbf)** | **RCS Pressure and Diff. Thermal Axial Force (lbf)** | | **Fz Contact Load (lbf)** | **Fz net (lbf)** | **Cumulative Fz net Loads (lbf)** |
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a,b,c

## 3.0 REFERENCES

1. Westinghouse Report WCAP-16208-P, Revision 1, "NDE Inspection Length for CE Steam Generator Tubesheet Region Explosive Expansions," May 2005.

2. "Nuclear Services Policies & Procedures," Westinghouse Quality Management System - Level 2 Policies and Procedures, Effective 12/15/05.

3. Westinghouse Report LTR-CDME-05-257, Revision 1, "Responses to NRC Requests for Additional Information on WCAP-16208-P, Rev. 0, 'NDE Inspection Length for CE Steam Generator Tubesheet Region Explosive Expansions'," January 23, 2006.

4. Westinghouse Report WCAP-15720, Revision 0, "NDE Inspection Strategy for Tubesheet Regions in CE Designed Units," CEOG Task 1154, July 2001.

5. "Braidwood Station, Units 1 and 2 – Issuance of Exigent Amendments RE: Revision of Scope of Steam Generator Inspections for Unit 2 Refueling Outage 11 (TAC NOS. MC6686 and MC6687)," NRC Letter from G.F. Dick to C.M. Crane (Excelon), April 25, 2005.

6. Westinghouse Report SG-SGDA-06-5, Revision 1, "Palisades Nuclear Plant Steam Generator Degradation Assessment REFOUT 18 Refueling Outage," April 2006.

7. W. C. Young and R. G. Budynas, "Roark's Formulas for Stress and Strain," Seventh Edition, Mc-Graw-Hill, New York, New York, 2002.

8. Palisades Document EM-09-05, Attachment 8, Revision 11, "Steam Generator Tube Plugging Notification," April 24, 2006.

ENCLOSURE 6

**LICENSE AMENDMENT REQUEST REGARDING TUBESHEET INSPECTION DEPTH FOR STEAM GENERATOR TUBE INSPECTIONS AT PALISADES NUCLEAR PLANT**

**<u>PROPRIETARY VERSION</u>**

LTR-CDME-06-40-P, "COMMENTS ON THE APPLICATION OF WCAP-16208-P, REVISION 1, 'NDE INSPECTION LENGTH FOR THE CE STEAM GENERATOR TUBESHEET REGION EXPLOSIVE EXPANSIONS' TO THE PALISADES NUCLEAR PLANT," DATED MAY 2006

WESTINGHOUSE AUTHORIZATION LETTER, CAW-06-2144, ACCOMPANYING AFFIDAVIT, PROPRIETARY INFORMATION NOTICE AND COPYRIGHT NOTICE

60 Pages Follow

Westinghouse

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Our ref: CAW-06-2144

May 16, 2006

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-CDME-06-40-P, Rev. 1, "Comments on the Application of WCAP-16208-P, Rev. 1, 'NDE Inspection Length for CE Steam Generator Tubesheet Region Explosive Expansions,' to the Palisades Nuclear Power Plant" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-06-2144 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 2.390 of the Commission's regulations.

Accordingly, this letter authorizes use 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-06-2144, and should be addressed to B. F. Maurer, Acting Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

S. S. Hess for

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

Enclosures

cc: G. Shukla

AFFIDAVIT

STATE OF CONNECTICUT:

ss Windsor

COUNTY OF HARTFORD:

Before me, the undersigned authority, personally appeared M. J. Gancarz, 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:

Michael J. Gancarz

M. J. Gancarz, Operations Manager
Nuclear Services
Westinghouse Electric Company, LLC

Sworn to and subscribed
before me this 16th day
of May, 2006

Laurie J. White
Notary Public

My Commission Expires: 8/31/09

(1) I am Operations Manager 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 Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 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 Westinghouse 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 2.390 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 constitute Westinghouse policy and provide 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 other 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 2.390, 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 LTR-CDME-06-40-P, Rev. 1, "Comments on the Application of WCAP-16208-P, Rev. 1, 'NDE Inspection Length for CE Steam Generator Tubesheet Region Explosive Expansions,' to the Palisades Nuclear Power Plant," being transmitted by Nuclear Management Company letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse for use by Palisades Nuclear Plant enables Westinghouse to support utilities in identifying and applying a steam generator tubesheet inspection model and, in particular, to determine the tubesheet inspection length appropriate for the Palisades Nuclear Plant steam generators, including:

(a) The identification of important factors relevant to determining the recommended steam generator tubesheet inspection length, and

(b) Development of a generic methodology for applying the inspection length model to utilities with NSSS plants.

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 the inspection model.

(c) 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 inspection models 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 2.390 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 2.390(b)(1).

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## COPYRIGHT NOTICE