Exelon Nuclear
200 Exelon Way
Kennett Square, PA 19348

www.exeloncorp.com

Exelon Nuclear

December 19, 2003

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Peach Bottom Atomic Power Station, Units 2 and 3
Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

SUBJECT: PROPRIETARY DOCUMENT
Review of Caldon Engineering Report ER-404, Revision 2

REFERENCES:

1. Letter from US NRC to J. L. Skolds (Exelon Generation Company, LLC), "Peach Bottom Atomic Power Station, Units 2 and 3 – Issuance of Amendment RE: 1.62% Increase in Licensed Power Level," dated November 22, 2002.
2. Caldon, Inc., Engineering Report ER-80P, "Topical Report - Improving Thermal Power Accuracy and Plant Safety While Increasing Operating Power Level Using the LEFM Check™ System," dated March 1997
3. Caldon, Inc., Engineering Report ER-157P, "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM Check™ or LEFM CheckPlus™ System," dated October 2001.
4. Letter from US NRC to C. L. Terry (Texas Utilities Electric), "Comanche Peak Steam Electric Station, Units 1 & 2 – Review of Caldon Engineering Topical Report ER 80P, 'Improving Thermal Power Accuracy and Plant Safety While Increasing Operating Power Level Using the LEFM Check™ System'," dated March 8, 1999.
5. Letter from US NRC to M. A. Krupa (Entergy Operations, Inc.), "Waterford Steam Electric Station, Unit 3; River Bend Station; and Grand Gulf Nuclear Station – Review of Caldon, Inc., Engineering Report ER-157P," dated December 20, 2001.

Enclosed are copies of Caldon, Inc., Engineering Report ER-404, "Topical Report Enhanced Accuracy of LEFM CheckPlus Systems in Backup Modes of Operation," Revision 2, dated December 2003. Exelon Generation Company, LLC (Exelon) requests your review and approval of this report.

By letter dated November 22, 2002 (Reference 1), the NRC issued Amendment Nos. 247 and 250 for Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station, Units 2 and 3, respectively. These amendments increased the licensed power level by approximately 1.62% from 3458 megawatts thermal (MWt) to 3514 MWt. These changes were based on increased feedwater flow measurement accuracy achieved by the installation of the Caldon, Inc., Leading Edge Flow Meter (LEFM) CheckPlus™ System. Caldon Engineering Report

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ER-80P (Reference 2), as supplemented by Engineering Report ER-157P (Reference 3), documents the theory, design and operating features of the LEFM CheckPlus™ system and its ability to achieve increased accuracy of flow measurement. The NRC approved the use of ER-80P and ER-157P in Safety Evaluations dated March 8, 1999 (Reference 4), and December 20, 2001 (Reference 5), respectively.

Caldon Engineering Report ER-404 supplements Engineering Reports ER-80P and ER-157P by providing additional information on the capability of the LEFM CheckPlus™ System to maintain the accuracy of feedwater flow measurements in a variety of system configurations. This report provides

additional operational flexibility by allowing continued plant operation at the highest safe power level in the event of multiple component failures without having to consider the LEFM CheckPlus™ System inoperable.

Caldon Engineering Report ER-404 satisfies the criteria for a topical report described in Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-500, "Processing Requests for Reviews of Topical Reports," Revision 1, dated October 18, 2002, as indicated below.

(1) The report deals with a specific safety-related subject regarding a nuclear power plant that requires a safety assessment by the NRC staff, for example, component design, analytical models or techniques, or performance testing of components and/or systems that can be evaluated independently of a specific license application.

Typically, the instrumentation for measuring feedwater flow rate consists of a venturi, an orifice, or a flow nozzle that generates a differential pressure which is proportional to the feedwater velocity in the pipe. The Caldon LEFM CheckPlus™ System technology involves transit time methodology which uses ultrasonic pulse transmission in multiple acoustic paths across pipe cross sections to more accurately measure feedwater flow. The theory, design and operating features of the Caldon LEFM CheckPlus™ System are documented in Caldon Engineering Reports ER-80P and ER-157P as previously approved by the NRC. However, Caldon Engineering Report ER-404 is a generic report that provides additional details not provided in the previous reports on operation of the LEFM CheckPlus System in a variety of system configurations. These details build upon data gathered from actual operating experience with LEFM CheckPlus Systems. While the use of the LEFM CheckPlus System for power level determination is not safety-related, plant power level determination is important to safety since power level is controlled by the plant facility operating license.

(2) The report is, or is expected to be, referenced in a number of license amendments or standardized reference design approval applications.

Caldon Engineering Report ER-404 is a generic report that supplements the previous Caldon Engineering Reports (ER-80P and ER-157P; also generic) which were referenced in licensing actions by Texas Utilities Electric, Entergy Operations, Inc., and Exelon that requested power uprates based on the installation of the Caldon LEFM CheckPlus™ System. This report, together with the other Caldon Engineering Reports for the LEFM CheckPlus™ System, provides the basis for any future licensing actions on the part of the above mentioned licensees or others who wish to take advantage of the reduction of feedwater flow measurement uncertainties through installation of the LEFM CheckPlus™ System.

(3) The report contains complete and detailed information on the specific subject presented. Conceptual or incomplete preliminary information will not be reviewed.

Caldon Engineering Report ER-404 is complete and provides detailed information necessary for operation of the LEFM CheckPlus™ System in a variety of system configurations while maintaining the accuracy of feedwater flow measurements.

(4) NRC approval of the report will increase the efficiency of the review process for applications that reference the report.

NRC approval of generic Caldon Engineering Report ER-404 would minimize industry and NRC time and effort by providing for a single upfront review and approval of the capability of the Caldon LEFM CheckPlus™ System to maintain the accuracy of feedwater flow measurements while functioning in a variety of system configurations. Once approved by the NRC, nuclear power plants that have a Caldon LEFM CheckPlus™ System (e.g., Beaver Valley, Unit 2; Waterford, Unit 3; River Bend; Grand Gulf; H. B. Robinson; D.C. Cook, Units 1 and 2; and Peach Bottom, Units 2 and 3) would then be able to take advantage of the operational flexibility provided in the report under the requirements of 10 CFR 50.59. In addition, any utility licensee that wishes to install a Caldon LEFM CheckPlus™ System in their plant may reference Engineering Report ER-404 in conjunction with Engineering Reports ER-80P and ER-157P in any licensing actions related to power uprate.

Copies of both the proprietary and non-proprietary versions of the report are attached. The proprietary version is identified as ER-404 (Attachment 2) and the non-proprietary version is ER-404NP (Attachment 3). An Affidavit, signed by an officer of Caldon, Inc., is provided in Attachment 1 to this letter in support of a request that the proprietary version of the report be withheld from public disclosure in accordance with the requirements of 10CFR2.790(a)(4).

Exelon requests approval of Caldon Engineering Report ER-404 by May 15, 2004, in order to support the increase in operating power during the summer months.

There are no commitments contained within this letter.

If you have any questions or require additional information, please contact Glenn Stewart at 610-765-5529.

Respectfully,

D. E. Helker /FOR

Michael P. Gallagher
Director, Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachments:
1. Affidavit Concerning Proprietary Information
2. Caldon Engineering Report ER-404 (Proprietary)
3. Caldon Engineering Report ER-404N (Non-Proprietary)

cc: Regional Administrator - NRC Region I — w/Attachments 1 & 3 only
NRC Senior Resident Inspector - PBAPS — "
NRC Project Manager, NRR - PBAPS — w/Attachments 1, 2 & 3
(3 copies proprietary; 1 copy non-proprietary)

Attachment 1

Peach Bottom Atomic Power Station, Units 2 and 3
Docket Nos. 50-277 and 50-278

Affidavit for Request to Withhold Caldon
Topical Report ER-404 from Public Disclosure

December 18, 2003
CAW 03-04

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

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: "Caldon, Inc. Engineering Report: ER- 404 Revision 2, Topical Report Enhanced Accuracy of LEFM CheckPlus Systems in Back up Modes of Operation"

Gentlemen:

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

The proprietary information for which withholding is being requested is identified in the subject submittal. In conformance with 10 CFR Section 2.790, Affidavit CAW-03-04 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 Caldon, 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 CAW-03-04 and should be addressed to the undersigned.

Very truly yours,

Calvin R. Hastings
President and CEO

Enclosures

December 18, 2003
CAW-03-04

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

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

Calvin R. Hastings

Calvin R. Hastings,
President and CEO
Caldon, Inc.

Sworn to and subscribed before me

this 18th day of

December, 2003

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Joann B. Thomas, Notary Public
City of Pittsburgh, Allegheny County
My Commission Expires July 28, 2007
Member, Pennsylvania Association of Notaries

1. I am the President and CEO of Caldon, Inc. 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 Caldon.

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 Caldon application for withholding accompanying this Affidavit.

3. I have personal knowledge of the criteria and procedures utilized by Caldon 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 Caldon.

   (ii) The information is of a type customarily held in confidence by Caldon and not customarily disclosed to the public. Caldon 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 Caldon policy and provides the rational basis required. Furthermore, the information is submitted voluntarily and need not rely on the evaluation of any rational basis.

   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 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 Caldon's competitors without license from Caldon 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, and assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Caldon, its customer or suppliers.

(e) It reveals aspects of past, present or future Caldon or customer funded development plans and programs of potential customer value to Caldon.

(f) It contains patentable ideas, for which patent protection may be desirable.

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

(a) The use of such information by Caldon gives Caldon a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Caldon competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Caldon ability to sell products or services involving the use of the information.

(c) Use by our competitor would put Caldon 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 Caldon of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Caldon in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Caldon 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 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 "Caldon, Inc. Engineering Report: ER- 404 Revision 2, Topical Report Enhanced Accuracy of LEFM CheckPlus Systems in Back up Modes of Operation". The information sought to be withheld is appropriately marked pursuant to 10 CFR § 2.790(b)(1)(i)(A, B) and can be found on pages 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, and Appendix A. This information is voluntarily submitted for use by the NRC Staff in their review of the accuracy assessment of the proposed methodology for LEFM CheckPlus Systems used by Licensees for MUR UPRATES.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Caldon because it would enhance the ability of competitors to provide similar flow and temperature measurement systems 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 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 Caldon effort and the expenditure of a considerable sum of money.

In order for competitors of Caldon to duplicate this information, similar products would have to be developed, 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 analytical methods and receiving NRC approval for those methods.

Further the deponent sayeth not.