Caldon, Inc.
1070 Banksville Avenue
Pittsburgh, PA 15216
412-341-9920 Tel
412-341-9951 Fax
www.caldon.net

January 30, 2001
CAW 01-02

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

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Caldon ER-160P, "Engineering Report – 160P: Supplement to Topical Report ER-80P: Basis for a Power Uprate With the LEFM✓™ System", Rev. 0. Enclosure PPL Letter, PLA-5276 "Proposed Amendment 235 to License NPF-14 and Proposed Amendment 200 to NPF-22: Power Uprate"

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-01-02 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-01-02 and should be addressed to the undersigned.

Very truly yours,

Calvin R. Hastings
President and CEO

Enclosures

January 30, 2001
CAW-01-02

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,
President and CEO
Caldon, Inc.

Sworn to and subscribed before me

this 30th day of

January, 2001

Notarial Seal
Joann B. Thomas, Notary Public
Pittsburgh, Allegheny County
My Commission Expires July 28, 2003
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.

   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 Enclosure (Caldon ER-160P) to PPL Susquehanna LLC letter PLA-5276 dated February 5, 2001 from R. G. Byram to the NRC Document Control Desk, "Proposed Amendment 235 to License NPF-14 and Proposed Amendment 200 to NPF-22: Power Uprate". This information is submitted for use by the NRC Staff and is expected to be applicable in other license submittals for justification of the use of Ultrasonic Flow Measurement Instrumentation to increase reactor plants' thermal power.

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.

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PPL Susquehanna, LLC : Docket No. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION
REVISED SUBMITTAL OF PROPOSED AMENDMENT NO. 235 TO LICENSE NPF-14 AND PROPOSED AMENDMENT NO. 200 TO NPF-22: POWER UPRATE

Licensee, PPL Susquehanna, LLC, hereby files a revision to its Facility Operating License No. NPF-14 dated July 17, 1982.

This amendment contains a revision to the Susquehanna SES Unit 1 Technical Specifications.

PPL Susquehanna, LLC
By:

R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
This 8th day of February, 2001.

Notary Public

Notarial Seal
Nancy J. Lannen, Notary Public
Allentown, Lehigh County
My Commission Expires June 14, 2004

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PPL Susquehanna, LLC : Docket No. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION
REVISED SUBMITTAL OF PROPOSED AMENDMENT NO. 235 TO
LICENSE NPF-14 AND PROPOSED AMENDMENT
NO. 200 TO NPF-22: POWER UPRATE

Licensee, PPL Susquehanna, LLC, hereby files a revision to its Facility Operating License No. NPF-22 dated March 23, 1984.

This amendment contains a revision to the Susquehanna SES Unit 2 Technical Specifications.

PPL Susquehanna, LLC
By:

R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
This 8th day of February, 2001.

Notary Public

Notarial Seal
Nancy J. Lannen, Notary Public
Allentown, Lehigh County
My Commission Expires June 14, 2004

ATTACHMENT 1

PENDING TECHNICAL SPECIFICATION CHANGES

The following Technical Specification change submittals currently undergoing NRC review have been reviewed by PPL Susquehanna LLC and determined not to be affected by the change proposed here in.

- PLA-5169, Proposed Amendments No. 194 to License NPF-22: MCPR Safety Limits, dated March 20, 2000.

- PLA-5148, Proposed Amendment No. 228 to License NPF-14: Revision to the Legend of Technical Specification Figure 3.4.10.1 and Amendment No. 191 to License NPF-22: Revision to the Legend of Technical Specification Figure 3.4.10.1 and Revise a Reference in Technical Specification Section 5.6.5.b, dated January 13, 2000.

- PLA-5218, Proposed Amendment No. 232 to License NPF-14 and Proposed Amendment No. 197 To License NPF-22: H_2O_2 Analyzer Penetration dated August 8, 2000.

- PLA-5219, Proposed Amendment No. 231 to License NPF-14 and Proposed Amendment No. 196 to License NPF-22: MSIV Maximum Pathway Leakage dated July 31, 2000.

- PLA-5156, Proposed Amendment No. 230 to License NPF-14: Alternate Reload Analysis Methods and Amendment No. 193 to License NPF-22: Alternate Reload Analysis Methods dated, February 29, 2000.

- PLA-5227, Proposed Amendment No. 233 to License NPF-14: and Proposed Amendment No. 198 to License NPF-22: Relaxation of Surveillance Testing Requirements for Excess Flow Check Valves And Submittal of Pertinent IST Program Relief Requests dated October 4, 2000.

- PLA-5228, Proposed Amendment No. 234 To License NPF-14: and Proposed Amendment No. 199 to License NPF-22: Vacuum Breaker Setpoints dated November 28, 2000.

- PLA-5258, Proposed Amendment No. 198 to License NPF-22: RHR Relief Valve Line Leak Testing dated November 28, 2000.

- PLA-5257, Proposed Amendment No. 236 to License NPF-21 and Proposed Amendment No. 201 to License NPF-22 Elimination of Response Time Testing dated November 16, 2000.

The following NRC issued License Amendments that have not been implemented at PPL Susquehanna LLC have been reviewed and determined to not be affected by the change proposed here in.

- The NRC approved amendments numbered 187 to Facility Operating License No. NPF-12 and Amendment 161 Facility Operating License No. NPF-22 which incorporate changes regarding the Final Response to Generic Letter 94-02; Long Term Stability Solution. These amendments are required to be implemented by November 1, 2001.

ATTACHMENT 2

SAFETY ASSESSMENT

Safety Impact Assessment

Section I – Introduction

The Rated Thermal Power (RTP) of SSES Units 1 and 2 is proposed to be increased by 1.4 percent. The increase in power evaluated and justified herein is obtained by installation of a more accurate feedwater flow measuring system. The Leading Edge Flow Meter (LEFM✓™) supplied by Caldon, Inc., will be installed in both SSES Units.

The increased accuracy of the LEFM✓™ instrument results in an increased accuracy of the calorimetric calculation (< ± 0.6 percent of core thermal power, based on a standard 95% confidence interval evaluation as discussed in Reference 1) versus the currently installed venturi flow instrument (< ± 2. percent of core thermal power). This reduction of uncertainty in the core thermal power calculation allows operation at the proposed increased RTP with no decrease in the confidence level that the actual operating power level is less than the power level required to be assumed in the ECCS accident analyses by 10CFR50, Appendix K.

The improved core thermal power measurement accuracy obviates the need for the full 2 percent power margin required to be assumed in Appendix K analyses, thereby allowing an increase in thermal power available for electrical generation. Concurrently, the LEFM✓™ instrumentation improves the certainty that actual reactor core thermal power remains at or below the value assumed in the Appendix K analyses.

Section II – Change Description

The following two plant modifications are required to implement the proposed changes:

1. The Caldon LEFM✓™ system will be installed in all three feedwater lines on both Unit 1 and Unit 2. The system will be installed by welding a six-foot spool piece into each feedwater line (three in Unit 2 in the spring of 2001 and three in Unit 1 in the spring of 2002). Ultrasonic flow detectors are mounted in each spool piece. The output from each set of ultrasonic detectors is sent to a common signal processing cabinet located near the detectors. The processing cabinet calculates feedwater flow and feedwater temperature. These signals are used directly by the process computer in calculating the operating reactor core thermal power. The LEFM✓™ Topical Report and its supplement (References 1 and 5) contain a detailed discussion of the LEFM✓™ system. Reference 1 was previously approved by the NRC (Reference 2) for use at Comanche Peak. The Topical Report Supplement (ER-157P) discusses an improved measurement system (LEFM CheckPlus™) which supports the additional 0.4% thermal power increase and has not previously been reviewed by the NRC.

2. Due to electrical grid stability concerns, the 3000 amp gang-operated circuit breakers in the SSES 230 KV switchyard will be replaced with 3000 amp independent pole mounted circuit breakers. The purpose for this change is to assure that the electrical grid remains stable at the higher power level for the same series of electrical faults as it is currently evaluated in the SSES FSAR, Table 8.2-1. The replacement of the 3000 amp gang-operated circuit breakers with the 3000 amp independent pole mounted circuit breakers is not required until the increase in rate core thermal power is implemented on Unit 1. The reason is that the increase in rated thermal power on one unit alone is not enough to make the grid unstable under any of the faults evaluated in the FSAR. Further details on the replacement of these circuit breakers can be found in Reference 3, Section 6.1.1.

The following changes to the Unit 1 and Unit 2 Technical Specifications are required to reflect the uprated RTP.

1. The definition of RTP contained in Section 1.1 of the Unit 1 and Unit 2 Technical Specifications is revised to identify a RTP of 3489 MWt.

2. Section 5.6.5 "Core Operating Limits Report (COLR)" of the Unit 1 and Unit 2 Technical Specifications is revised to identify that a power level of 3489 MWt (101.4% of current RTP) may be used when the LEFM✓™ system is available to determine the operating core thermal power level. Section 5.6.5 "Core Operating Limits Report (COLR)" is revised to add the LEFM✓™ topical report to the list of analytical methods documents.

The SSES Unit 1 and Unit 2 License paragraphs 2.C.1, "Maximum Power Level" are also revised to identify the revised value of 3489 MWt as the Maximum Core Thermal Power Level.

Mark-up pages of the affected Technical Specifications and License pages are attached for both Units 1 and 2.

In addition, the SSES Units 1 and 2 Technical Requirements Manuals will be revised to include guidance for the case when the LEFM✓™ system becomes unavailable. The guidance will direct the Operations Staff to operate the plant consistent with the accident analyses and the uncertainties associated with the system used to determine the operating RTP.

The SSES FSAR will be revised to reflect both methods of thermal power measurement and the associated instrument uncertainty terms.

Section III – Safety Assessment

Background:

Based on the use of the LEFM✓™ system as described in References 1 and 5, PPL requests a 1.4% increase in rated thermal power (RTP). The 1.4% increase in RTP is justified on the basis of the increased measurement accuracy of the LEFM✓™ system. PPL analysis and Reference 1 conclude that operation at 3489 MWt (101.4% of the current RTP of 3441 MWt) will have approximately the same probability of exceeding the analyzed limit of 3510 MWt as operation at the current RTP using the currently installed venturi flow meter to determine feedwater flow. Therefore, there is no effect on the 10CFR50, Appendix K analysis basis of the SSES units when operating at the increased RTP.

Evaluation

PPL has evaluated the effect on the proposed increase in RTP on safety related components, systems and structures at SSES Units 1 and 2. The effect of the increase was also evaluated with respect to licensed operator performance, training and emergency preparedness.

PPL Licensing Topical Report NE-2000-001 (Reference 3) documents the PPL evaluation of the impact of the 1.4 percent increase in RTP. This report follows the NRC-approved generic format and content of BWR power uprate licensing reports developed by General Electric Company and reported in NEDC-31897-A, "Generic Electric Boiling Water Reactor Power Uprate" (Licensing Topical Report 1, or LTR1).

Detailed evaluations of the reactor and engineered safety features; of power conversion, emergency power and support systems; of environmental issues; of design basis analyses; and of previous licensing evaluations were performed. The PPL Licensing Topical Report demonstrates that both Units 1 and 2 of the Susquehanna Steam Electric Station (SSES) will operate safely with the requested 1.4 percent increase in rated thermal power.

The generating capacity of a BWR such as SSES can be increased by increasing the steam flow through the turbine, up to the limits imposed by the RTP and the turbine and generator designs. The proposed power uprate, discussed herein, increases the licensing power level by decreasing the variability (that is, increasing the accuracy) of the feedwater flow measurement. The power level used for licensing basis and LOCA analyses is not changed. Therefore, any design basis analyses performed using the current licensing basis power level of 3510 MWt is not affected and does not require any further review.

The PPL Licensing Topical Report describes the evaluations performed that show that both Units 1 and 2 of SSES will operate safely with the proposed 1.4 percent increase in licensed thermal power level. Evaluations include those performed on the turbine-

generator system to assure that the increased steam flow can be accommodated, and on the balance of plant and support systems to assure that these systems remain within their design basis.

Plant-unique evaluations performed include reviews of design documents, operating data and specific studies prepared for the previous power uprate submittal for the SSES units. These studies and data have been evaluated to confirm that the SSES design is adequate for the 1.4 percent uprated conditions.

Fuel design analyses are based on the use of Siemens Power Corporation (SPC) ATRIUM-10™ fuel bundles in both units. Specifics of the fuel design and analyses methods are delineated in the SSES Technical Specifications. Reference 4 was submitted to propose changes to the Minimum Critical Power Ratio (MCPR) Safety Limits for Unit 2. The changes set forth in Reference 4 are not affected by this proposed license amendment.

The LEFM✓™ Topical Reports (References 1 and 5) detail the applicability of the LEFM✓™ measurement system for boiling water reactors such as SSES. PPL Corporation has reviewed the Topical Report and its Supplement, confirming applicability of these Topical Reports to SSES.

Section IV – References

1. Caldon, Inc., Engineering Report-80P, "Improving Thermal Power Accuracy and Plant Safety While Increasing Operating Power Level Using the LEFM✓™ System," Revision 0, March 1997

2. Letter from John N. Hannon, NRC to C. L. Terry, Sr. Vice President and Principle Nuclear Officer, TU Electric, "Comanche Peak Steam Electric Station, Units 1 and 2 – Review of Caldon Engineering Topical Report ER 80P, "Improving Thermal Power Accuracy and Plant Safety While Increasing Power Level Using the LEFM✓™ System (TAC NOS. MA2298 and MA2299)," March 8, 1999.

3. PPL Licensing Topical Report Number NE-2000-001P, "Licensing Topical Report for Power Uprate Resulting From Increased Feedwater Flow Measurement Accuracy," Revision 1.

4. PLA-5169, "Proposed Amendment No. 194 to License NPF-22: MCPR Safety Limits," March 20, 2000.

5. Caldon, Inc., Engineering Report ER-160P, "Supplement to Topical Report ER-80P: Basis for a Power Uprate With the LEFM✓™ System,' Revision 0, May 2000.