Nuclear Operating Company

South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

Attachments 3 and 4 contain proprietary information and should be withheld from public disclosure in accordance with 10 CFR 2.390

August 14, 2014
NOC-AE-14003161
10 CFR 50.90
10 CFR 2.390
File No. D.43.01

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

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
License Amendment Request - Proposed Revision to Administrative
Controls Technical Specification 6.9.1.6, "Core Operating Limits Report (COLR)"

In accordance with the provisions of 10 CFR 50.90, STP Nuclear Operating Company (STPNOC) hereby requests a license amendment to South Texas Project Operating Licenses NPF-76 and NPF-80. This proposed license amendment revises Administrative Controls Technical Specification (TS) 6.9.1.6, "Core Operating Limits Report," with respect to the analytical methods used to determine the core operating limits.

During the 2015 refueling outage in each unit, STPNOC will replace the existing Crossflow Ultrasonic Flow Measurement (UFM) System with a Cameron/Caldon Leading Edge Flow Meter (LEFM) CheckPlus System for measuring feedwater flow. The plant changes are governed by the 10 CFR 50.59 process. The proposed TS change would revise the methodology for operating at a rated thermal power (RTP) of 3,853 MWt to reflect the change of feedwater flow measurement equipment. This license amendment request (LAR) and its TS change reflect only the equipment change and do not constitute a measurement uncertainty recapture (MUR) power uprate application. The units will continue to operate with the currently licensed RTP of 3,853 MWt.

Enclosure 1 provides an evaluation of the proposed change, a determination that the proposed amendment contains No Significant Hazards Consideration, and the basis for the categorical exclusion from performing an Environmental Assessment/Impact Statement pursuant to 10 CFR 51.22(c)(9). Although this is not a MUR power uprate application, Enclosure 2 addresses the relevant information requested in Regulatory Issue Summary 2002-03, Attachment 1, Part I regarding the LEFM CheckPlus System to be installed. The proposed TS marked-up page is included as Enclosure 3.

This letter contains four attachments (Attachments 1 through 4). Attachments 1 and 2 are non-proprietary documents; Attachments 3 and 4 are the proprietary versions and contain proprietary material that should be withheld from public disclosure as documented by the affidavits in Enclosure 4. Throughout this submittal only Attachments 1 and 2 will be referenced.

A001
NRR

STI: 33903859

The STPNOC Plant Operations Review Committee has reviewed and concurred with the proposed change to the Technical Specifications.

STPNOC requests approval of this license amendment application by February 28, 2015. The equipment change is scheduled to be implemented in April 2015 during Unit 2 refueling outage 2RE17 and in October 2015 during Unit 1 refueling outage 1RE19. The requested review period is consistent with NRC internal guidance and supports the recovery of STPNOC generation capacity. STPNOC requests a 90-day implementation period after the amendment is approved. STPNOC will submit an administrative TS change to remove reference to the Crossflow UFM System when both units have the LEFM CheckPlus System installed.

In accordance with 10 CFR 50.91(b), STPNOC is notifying the State of Texas of this request for license amendment by providing a copy of this letter and enclosures, without Attachments 3 and 4 (Proprietary).

There are no commitments in this letter.

If there are any questions regarding the proposed amendment, please contact Rafael Gonzales at (361) 972-4779.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 14, 2014
Date

G. T. Powell
Site Vice President

Jtc

Enclosures:
1. Evaluation of the Proposed Change
2. Summary of Relevant Information Requested in Regulatory Issue Summary 2002-03
3. Technical Specification Page (Marked-up)
4. Cameron Applications for Withholding Proprietary Information from Public Disclosure

Attachments:
1. Cameron Measurement Systems/Caldon Ultrasonics Engineering Report: ER-1059 Rev. 1, "Bounding Uncertainty Analysis for Thermal Power Determination at South Texas Project Units 1 and 2 Using the LEFM CheckPlus System" (Non-Proprietary)
2. Cameron Measurement Systems/Caldon Ultrasonics Engineering Report No. 1060 Rev. 1, "Meter Factor Calculation and Accuracy Assessment for South Texas Project Units 1 and 2." (Non-Proprietary)
3. Cameron Measurement Systems/Caldon Ultrasonics Engineering Report: ER-1059 Rev. 1, "Bounding Uncertainty Analysis for Thermal Power Determination at South Texas Project Units 1 and 2 Using the LEFM CheckPlus System" (Proprietary)
4. Cameron Measurement Systems/Caldon Ultrasonics Engineering Report No. 1060 Rev. 1, "Meter Factor Calculation and Accuracy Assessment for South Texas Project Units 1 and 2." (Proprietary)

cc: w/o Attachments 3 and 4 (except *)
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ENCLOSURE 1

Evaluation of the Proposed Change

Subject: Proposed Revision to Administrative Controls Technical Specification 6.9.1.6, "Core Operating Limits Report"

1.0 SUMMARY DESCRIPTION

During the next refueling outage in each unit, the existing Crossflow Ultrasonic Flow Measurement (UFM) System will be replaced with a Caldon Leading Edge Flow Meter (LEFM) CheckPlus System as the normal (preferred) feedwater flow indication. The venturi-based feedwater flow instruments (venturis) will continue to provide inputs to other indication, protection, and control systems, and will be used for feedwater flow indication if the LEFM CheckPlus System is non-functional as defined in plant procedures. The physical changes to the plant will be completed under the 10 CFR 50.59 process and are not part of this LAR.

The proposed Technical Specifications (TS) change would revise the methodology for operating at an RTP of 3,853 MWt to reflect the change of feedwater flow measurement equipment. There is no MUR power uprate associated with this LAR.

2.0 DETAILED DESCRIPTION

Administrative Controls TS 6.9.1.6b currently states:

> The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

Item 9 in TS 6.9.1.6b currently defines CENPD-397-P-A, Revision 01, "Improved Flow Measurement Accuracy Using Crossflow Ultrasonic Flow Measurement Technology," May 2000, as the methodology for operating at an RTP of 3,853 MWt. The proposed amendment adds "with Crossflow UFM System" after "3,853 MWt."

The proposed amendment adds Item 9a to define Cameron Measurement Systems/ Caldon Ultrasonics Engineering Report: ER-157(P-A) Rev. 8 and Rev. 8 Errata, "Supplement to Caldon Topical Report ER-80P: Basis for Power Uprates with an LEFM Check or an LEFM CheckPlus System," May 2008, as the methodology for operating at an RTP of 3,853 MWt with the LEFM CheckPlus System.

The Crossflow UFM System will no longer be used in the respective unit when the LEFM CheckPlus System is installed.

Plant procedures presently govern operation at the existing licensed rated thermal power (RTP) of 3,853 MWt when the Crossflow UFM System is functional and operation at 3,838 MWt when the Crossflow UFM System is non-functional. Plant procedures will be revised to govern operation when the LEFM CheckPlus System is functional and non-functional.

The LEFM System has uncertainty values which support operating at the existing RTP of 3,853 MWt. The redundant CheckPlus mode has the lowest uncertainty value and the Check mode has a higher uncertainty value of $\leq$0.6% (see Attachment 1). Operating in either the CheckPlus or the Check mode will ensure that the secondary power is within the existing licensed 0.6% uncertainty and therefore within the RTP of 3,853 MWt.

During commissioning, the lab-calibrated venturis will be corrected to match the LEFM CheckPlus flow indication. This in-situ calibration value will be captured in the plant procedure for venturi calibration. While the LEFM is functioning in either the CheckPlus or Check mode of operation, the plant computer will trend a ratio between the individual loop LEFM indications and the individual loop venturi indications (in-situ calibrated venturis).

The redundant LEFM central processing units will continuously monitor system performance and the mode of operation. Alerts will be sent through the plant computer to the operator when the LEFM System changes from the CheckPlus mode of operation to another mode including a non-functional or "Fail" mode.

The LEFM System will alert the operator if the LEFM System is in the "Fail" mode. At that time, the LEFM System will be declared non-functional and a 72-hour repair window will be initiated. Additionally, at that time the LEFM System alert will "freeze" the plant computer ratio between the LEFM and the in-situ calibrated venturis and apply it as a correction factor to the in-situ calibrated venturis, producing a "corrected venturi" indication. During the repair window, operation can continue at the 3,853 MWt RTP value using the corrected venturis as long as neither the 72-hour window expires nor a 10% power change occurs. If either the 72-hour window expires or a 10% power change occurs, plant procedures will direct operators to limit power to 3,838 MWt by the in-situ calibrated venturis. This is the current NRC-approved limit for operation with the Crossflow UFM System non-functional.

Station procedures will control LEFM calibration, maintenance, and trending activities, and the frequency of each. In addition, long term trending and data collection of other plant parameters will be performed. Plant parameters that may be trended are the ratio of generator output to circulating water temperature, the output from independent secondary calorimetric software, measurements of High Pressure turbine first stage pressure, and the difference between hot leg and cold leg primary temperature. These parameters will be evaluated for use as proposed methods in substantiating the accuracy of the LEFM System.

Operation as described above will ensure that the plant operates within the uncertainty analyses.

No changes to the STPEGS Updated Final Safety Analysis Report (UFSAR) are anticipated as a result of this LAR nor are any changes to the TS Bases necessary.

3.0 TECHNICAL EVALUATION

3.1 Background

STP Unit 1 and Unit 2 were initially licensed to operate at an RTP of 3,800 MWt. In April 2002, the NRC approved a 1.4% power uprate (Reference 6.1) based on the reduced core thermal power level uncertainty associated with more accurate measurement of feedwater flow by the Crossflow UFM System.

During Unit 2 refueling outage 2RE16, the feedwater pipe wall in the area of the Crossflow UFM System was found to have thinned and pipe diameter constants were adjusted in the Crossflow UFM System calculation. When Unit 1 readings later indicated the same type of

erosion, the Crossflow UFM System was taken out of service until the pipe diameter constants were adjusted in the Crossflow UFM System calculation.

STP Nuclear Operating Company (STPNOC) contracted two independent firms to verify the actual power level at which the units were operating. Both studies found that prior to correcting the pipe diameter in the RTP calculations, the Crossflow UFM indications of approximately 3,853 MWt were within the allowed uncertainty. After correcting the pipe diameter, the UFM indications of approximately 3,853 MWt were higher by 1% to 1.3% compared to the studies, indicating that actual power was closer to between 3,803 MWt and 3,815 MWt. STPNOC will replace the Crossflow UFM System with the Caldon LEFM CheckPlus System in both units during the refueling outages in 2015 in order to operate at the currently licensed RTP of 3,853 MWt.

In August 2010 (Reference 6.2), the NRC staff found the Caldon LEFM CheckPlus System described in Reference 6.3 to be acceptable for referencing in a MUR application. While this proposed license amendment is not a MUR application for power uprate, the information presented in Reference 6.3 and approved by the NRC remains valid and supports this proposed amendment from an equipment standpoint.

3.2 Evaluation

The technical evaluation for this LAR to reflect an equipment change from the Crossflow UFM System to the LEFM CheckPlus System is summarized in Enclosure 2 in the format of Regulatory Issue Summary (RIS) 2002-03, Attachment 1, Part I (Reference 6.4).

The uncertainty analysis submitted with this LAR (Attachment 1) bounds the LEFM CheckPlus System uncertainty to less than $\pm$0.5%, as required by STP's operating license thermal power limit, based on calibrations of the STP flow elements and calibrations of more than 100 additional LEFM flow elements in a wide variety of hydraulic installations. While acceptable demonstration of the $\pm$0.5% mass flow uncertainty is sufficient for input into STP's power calorimetric, STP will conduct a full-scale test of each LEFM CheckPlus flow element in simulated plant configurations followed by a comparison with in-plant operation. Test fidelity, such as test versus planned plant configuration, test variations to address configuration differences, and potential effects of operation on flow profile and calibration, will be determined by site-specific tests planned during December 2014 - January 2015. The uncertainty in mass flow measurement after these site-specific tests are completed will be approximately $\pm$0.3%, as described in the approved Topical Reports.

Following installation and commissioning of the LEFM CheckPlus System, Cameron will provide a Commissioning Letter stating that the installation and commissioning have been reviewed and that based on analysis of the signal quality, hydraulics, alarm limits/thresholds, velocities/sound velocities, and configuration files, the operation of the system meets the requirements of the site-specific uncertainty analysis (Attachment 1) and the Topical Reports ER-80P and ER-157P as accepted by the NRC for referencing in licensing applications for a MUR power uprate. The power level will not exceed 3,838 MWt until the Commissioning Letter is received. Upon receipt of the Commissioning Letter, STPNOC will use the LEFM for determining RTP at the currently licensed level of 3,853 MWt.

In the LEFM Safety Evaluation (Reference 6.2), the NRC stated that with one exception, there is no further need to re-examine the hydraulic bases for use of the LEFM CheckPlus Systems in nuclear power plant feedwater applications. The exception, which should be addressed on a plant-specific basis, occurs if there is an upstream tubular flow straightener. There is no tubular flow straightener in the feedwater piping upstream of the LEFM CheckPlus System in STP Unit 1 or Unit 2.

A repair period of 72 hours is consistent with Cameron's analysis and recommendations for operating with a failed LEFM, and is based on the time it takes to resolve an LEFM failure. At the same time, 72 hours for repair or replacement of instrumentation and control system components is an established safety practice in the nuclear power industry. The NRC has approved a 72-hour operating period with LEFM failure in the recent LEFM CheckPlus System-based MUR power uprate applications for Byron/Braidwood, McGuire, Shearon Harris, Limerick, and Calvert Cliffs.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The determination that the results of the proposed changes are acceptable was established in Reference 6.2. The NRC staff found that the hydraulic aspects of the CheckPlus System have been accurately described in applicable documentation and that there is a firm theoretical and operational understanding of behavior. Applicability of these conclusions has been verified through plant-specific reviews and implementation of the generic analysis results in accordance with the respective NRC Safety Evaluation conditions.

RIS 2002-03 provides generic guidance for evaluating a MUR power uprate. Although this LAR does not constitute a MUR power uprate application, Enclosure 2 to this LAR provides the plant-specific evaluation of the relevant portion of RIS 2002-03 Attachment 1, Part I, which is the evaluation of the equipment to be used.

4.2 Precedent

In Reference 6.3, the NRC staff found that ER-157(P) Rev. 8 is acceptable for referencing in licensing applications for a MUR power uprate application using the LEFM CheckPlus System for feedwater flow and temperature measurements to the extent specified and under the limitations delineated in the Engineering Report and in the final Safety Evaluation. While this proposed license amendment is not an application for a MUR power uprate, the information presented in the Engineering Report and approved by the NRC remains valid and supports this proposed amendment from an equipment standpoint.

The earliest MUR power uprate using the LEFM System was approved for Comanche Peak in September 1999 and there have been 28 approvals since early 2008.

4.3 Significant Hazards Consideration

STP has evaluated whether a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92 as discussed below.

1) Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change reflects a physical alteration of the plant, but not a new or different type of equipment. The existing external Crossflow UFM System will be replaced with the Cameron/Caldon LEFM CheckPlus System, both of which are ultrasonic feedwater flow measuring systems. The proposed change will not affect the operation or function of plant equipment or systems. The proposed change will not introduce any new accident initiators, and therefore does not increase the probability of any accident previously evaluated. There will be no degradation in the performance of or an increase in the number of challenges imposed on safety-related equipment assumed to function during an accident situation. There will be no change to normal plant operating parameters or accident mitigation performance. The proposed change will not alter any assumptions or change any mitigation actions in the radiological consequence evaluations in the UFSAR.

Therefore, the proposed change does not increase the probability or consequences of an accident previously evaluated.

2) Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change reflects a physical alteration of the plant, but not a new or different type of equipment. The existing external Crossflow UFM System is being replaced with the Cameron/Caldon LEFM CheckPlus System, both of which are ultrasonic feedwater flow measuring systems. The NRC Ultrasonic Flow Meter Allegation Task Group believes the LEFM CheckPlus UFMs are inherently better able to recognize and are less sensitive to changes in the velocity profile than the external UFM designs (Reference 6.5).

The proposed TS change is a change to the Administrative Controls section of the TS which does not change the meaning, intent, interpretation, or application of the TS. The physical plant change reflected by the TS change does alter the plant configuration by replacing one feedwater measurement system with another. However, this does not alter assumptions about previously analyzed accidents, or impact the operation or function of any plant equipment or systems. No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures will be introduced as a result of the proposed changes.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously analyzed.

3) Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change does not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. The Caldon LEFM CheckPlus System has a mass flow uncertainty of less than $\pm$0.5%, which is bounded by the total mass flow uncertainty of $\pm$0.97% applied in the current STP operating license. The safety analysis acceptance criteria as stated in the UFSAR are not impacted by the change. The proposed change will not result in plant operation in a configuration outside the design basis. The proposed LEFM CheckPlus System has demonstrated better measurement accuracies than the differential pressure type instruments and provides on-line verification to ensure that the system is operating within its uncertainty bounds. The existing safety analyses remain bounding.

Therefore, the proposed changes do not result in a significant reduction in a margin of safety.

Based on the above, STPNOC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATIONS

10 CFR 51.22(b) states that an environmental assessment or an environmental impact statement is not required for any action within a category of actions included in the list of categorical exclusions set out in paragraph 10 CFR 51.22(c)(9). This amendment request meets the specific criteria as discussed below.

(i) the amendment involves no significant hazards consideration

As demonstrated in the No Significant Hazards Consideration Determination above, the requested license amendment does not involve any significant hazards consideration.

(ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite

The requested license amendment reflects a physical change to the facility (feedwater flow measurement equipment replacement), but no change in the manner of operation of any plant systems involving the generation, collection or processing of radioactive materials or other types of effluents. Therefore, no significant increase in the amounts of effluents or new types of effluents would be created.

(iii) there is no significant increase in individual or cumulative occupational radiation exposure

The requested license amendment reflects a physical change to the facility (feedwater system flow measurement equipment replacement), but will not result in any increase in the radiation dose resulting from the operation of any plant system. Therefore, there will be no significant increase in individual or cumulative occupational radiation exposure associated with this proposed change.

Based on the above, it is concluded that there will be no impact on the environment resulting from this change.

6.0 REFERENCES

6.1 NRC letter, M. Thadani to W. Cottle (STPNOC), "Issuance of Amendments Approving Uprated Core Thermal Power and Revising the Associated Technical Specifications," April 12, 2002 (ML020800263).

6.2 NRC letter, T. Blount to E. Hauser (Caldon), "Final Safety Evaluation Report for Cameron Measurement Systems Engineering Report ER-157P, Revision 8, "Caldon Ultrasonics Engineering Report ER-157P, 'Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM Check or CheckPlus System'," August 16, 2010 (ML102160663, ML102160694).

6.3 Cameron Measurement Systems (Cameron/Caldon) Topical Report (TR) Engineering Report ER-157(P) Rev. 8 and Rev. 8 Errata, "Supplement to Topical Report ER-80P: Basis for a Power Uprates with an LEFM Check or an LEFM CheckPlus System," May 2008.

6.4 NRC Regulatory Issue Summary 2002-03 Guidance on the Content of Measurement Uncertainty Recapture Power Uprate Applications," January 31, 2002 (ML013530183).

6.5 NRC Ultrasonic Flow Meter Allegation Task Group, "Report of the Ultrasonic Flow Meter Allegation Task Group Review of Caldon Ultrasonic Flow Meters," June 7, 2004 (ML041760370).

ENCLOSURE 2

Summary of Relevant Information Requested in Regulatory Issue Summary 2002-03

1.0 Summary of Relevant Information Requested in Regulatory Issue Summary 2002-03

This LAR is a request that describes a change in the Technical Specifications made necessary by a plant equipment change. The LAR does not include a MUR power uprate. However, the following information regarding the LEFM CheckPlus System is provided as requested in Regulatory Issue Summary (RIS) 2002-03, Attachment 1, Part I.

I. Feedwater flow measurement technique and power measurement uncertainty

1. The feedwater flow measurement system at STP Unit 1 & Unit 2 is an LEFM CheckPlus ultrasonic multi-path transit time flow meter. The LEFM Check and LEFM CheckPlus Systems are advanced ultrasonic systems that accurately determine the volume flow and temperature of feedwater in nuclear power plants. Using a feedwater pressure signal input to the LEFM Check and LEFM CheckPlus Systems, mass flow can be determined and, along with the temperature output, is used with plant data to compute reactor core thermal power. The technology underlying the LEFM Check System ultrasonic instruments and the factors affecting their performance are described in Topical Report ER-80P and a supplement to this topical report, ER-160P. The LEFM CheckPlus System, which is made up of two LEFM Check subsystems, is described in another supplement to the LEFM Check System topical report, and is numbered ER-157P.

   The LEFM CheckPlus System in each STP unit consists of a spool piece containing sixteen transducers (in eight chordal paths) installed in each of the four feedwater flow loops, with eight transmitters and two central processing units located in the Turbine Generator Building. Each flow element will be installed at least five diameters downstream from the original feedwater venturis and the last pipe bend, and at least two diameters upstream from the next 90° bend. The installation location of each LEFM flow element will conform to the requirements in Cameron Topical Reports ER-80P, ER-160P, and ER-157P.

   a. The reference Topical Reports are as follows:

      i. ER-80P "Improving Thermal Power Accuracy and Plant Safety While Increasing Operating Power Level Using the LEFM Check System," dated March 1997

      ii. ER-160P "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM Check System," dated May 2000 (ML003723720)

      iii. ER-157P "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM Check or CheckPlus System," dated May 2009 (ML091340322)

   b. The NRC approved the Topical Reports on the following dates:

      i. ER-80P NRC SER dated March 8, 1999

ii. ER-160P NRC SER dated January 19, 2001 (ML010260074)

iii. ER-157P NRC SER dated August 16, 2010 (ML102160694)

c. The LEFM CheckPlus System will be permanently installed in STP Unit 1 & Unit 2 in accordance with the requirements of ER-80P, ER-160P, and ER-157P. It will be used for continuous calorimetric power determination by direct link with the plant computer and will incorporate self-verification features to ensure that hydraulic profile and signal processing requirements are met within its design basis uncertainty analysis.

The LEFM CheckPlus System will be calibrated in a site-specific model test at Alden Research Laboratories with traceability to National Standards. A copy of the Alden Labs certified calibration report will be in the Design Basis Uncertainty Analysis for the system.

The LEFM CheckPlus System will be installed and commissioned in accordance with Cameron procedures, including verification of ultrasonic signal quality and hydraulic velocity profiles as compared to those tested during site-specific model testing.

d. In approving ER-80P and ER-157P, the NRC established four criteria to be addressed by each licensee. The four criteria and a discussion of how each will be satisfied follows:

Criterion 1

Discuss maintenance and calibration procedures that will be implemented with the incorporation of the LEFM, including processes and contingencies for inoperable LEFM instrumentation and the effect on thermal power measurements and plant operation.

Response to Criterion 1

Implementation of the license amendment will include developing the necessary procedures and documents required for operation, maintenance, calibration, testing, and training with the new LEFM CheckPlus System. Plant maintenance and calibration procedures will be developed to incorporate Cameron's maintenance and calibration requirements to assure that the LEFM CheckPlus System is properly maintained and calibrated.

The LEFM CheckPlus System will be included in the STPNOC preventive maintenance program using Caldon Customer Information Bulletin 119 (November 2004) as a basis for pressure transmitter calibration during each refueling outage and spool piece pipe wall thickness measurement in accordance with the Flow Accelerated Corrosion program. The frequency may change in the future based on adequate trending information. These preventive maintenance activities, combined with a monthly review of

trend data from the continuous on-line automatic verification of the LEFM CheckPlus System, will ensure that the LEFM CheckPlus System continues to operate within its design basis. Furthermore, it is confirmed that the LEFM CheckPlus Systems installed in STP Unit 1 & Unit 2 incorporate an automatic check of resistance-to-ground on each transducer lead.

Contingency plans for operation of the plant with the LEFM CheckPlus System non-functional are described in Sections g. and h. below.

Criterion 2

For plants that currently have LEFMs installed, provide an evaluation of the operational and maintenance history of the installed installation and confirmation that the installed instrumentation is representative of the LEFM system and bounds the analysis and assumptions set forth in Topical Report ER-80P.

Response to Criterion 2

This Criterion is not applicable to STP Unit 1 & Unit 2, which currently do not have LEFMs installed.

Criterion 3

Confirm that the methodology used to calculate the uncertainty of the LEFM CheckPlus System in comparison to the current feedwater instrumentation is based on accepted plant set point methodology (with regard to the development of instrument uncertainty). If an alternative approach is used, the application should be justified and applied to both venturi and ultrasonic flow measurement instrumentation installations for comparison.

Response to Criterion 3

The LEFM system random and systematic uncertainties are treated according to the recommendations of the ASME PTC 19.1 methodology, and the International Society of Automation (ISA) standard ANSI/ISA-67.04.01 and Recommended Practice ISA-RP67.04.02 methodology, which are consistent with the methodology used in the current thermal power uncertainty calculation for the existing feedwater flow measurement instrumentation. STPNOC uses this same industry-accepted square root sum of the squares methodology in the development of the majority of its calculated instrument uncertainties and is the basis for STPNOC Setpoint Methodology Document 5Z120ZQ1028.

Additionally, since this LAR does not increase power (is not a MUR power uprate), there will be no impact to the Revised Thermal Design

Procedure, which was previously evaluated up to 3,853 MWt. The uncertainty created by the LEFM system will be bounded by the uncertainty analysis for the Departure from Nucleate Boiling Revised Thermal Design Procedure.

Criterion 4

For plants where the ultrasonic meter (including LEFM) was not installed and flow elements calibrated to a site-specific piping configuration (flow profiles and meter factors not representative of the plant specific installation), additional justification should be provided for its use. The justification should show that the meter installation is either independent of the plant specific flow profile for the stated accuracy, or that the installation can be shown to be equivalent to known calibrations and plant configurations for the specific installation including the propagation of flow profile effects at higher Reynolds numbers. Additionally, for previously installed calibrated elements, confirm that the piping configuration remains bounding for the original LEFM installation and calibration assumptions.

Response to Criterion 4

A complete LEFM CheckPlus uncertainty analysis based on calibration testing already conducted is provided with this submittal as Attachment 1. This analysis documents the ±0.5% flow uncertainty for this LAR, including the effects of velocity profile and upstream hydraulics on the LEFM CheckPlus.

In addition to and beyond the required scope of this LAR, the calibration factor for each LEFM CheckPlus flow element will be established by tests of these spools at Alden Research Laboratory in December 2014 - January 2015 for Unit 2 and later in 2015 for Unit 1. These will include tests of a full-scale model of the STP Unit 1 & Unit 2 hydraulic geometry and parametric tests. An Alden data report for these tests and a Cameron engineering report evaluating the test data will be on file. The calibration factor used for the LEFM CheckPlus System at STP Unit 1 & Unit 2 will be based on these reports. The uncertainty in the calibration factor for the spools will be based on the Cameron engineering report. The site-specific uncertainty analysis will document these analyses. This document will be maintained on file as part of the technical basis for STP Unit 1 & Unit 2.

Final acceptance of the site-specific uncertainty analyses will occur after completion of the commissioning process. The commissioning process verifies bounding calibration test data (see Appendix F of ER-80P), which provides final positive confirmation that actual performance in the field meets the uncertainty bounds established for the instrumentation. Following installation and commissioning of the LEFM CheckPlus System, Cameron will provide a Commissioning Letter documenting that

the installed LEFM CheckPlus System uncertainty meets the uncertainty defined in the Attachment 1 analysis and meets the requirements of Topical Reports ER-80P and ER-157P as accepted by the NRC for referencing in licensing applications for a MUR power uprate. The power level will not exceed 3,838 MWt until the Commissioning Letter is received. Upon receipt of the Commissioning Letter, STPNOC will use the LEFM for determining RTP at the currently licensed level of 3,853 MWt. Final commissioning is expected to be completed during the startup following 2RE17 and 1RE19.

e. Table 1 at the end of this enclosure provides a comparison of the uncertainties at STP Unit 1 & Unit 2.

f. The following information addresses specific aspects of calibration and maintenance procedures addressing the LEFM.

i. Calibration and maintenance is performed by STPNOC using site procedures developed from the Cameron technical manuals. All work is performed in accordance with the site work control program.

Routine preventive maintenance procedures may include physical inspections, power supply checks, back-up battery replacements, and internal oscillator frequency verification based on Cameron recommendations.

Ultrasonic signal verification and alignment is performed automatically with the LEFM CheckPlus System. Signal verification is possible by review of signal quality measurements performed and displayed by the LEFM CheckPlus System.

I&C personnel will be trained and qualified per the I&C training program on the LEFM CheckPlus System before work or calibration may be performed. Formal training by Cameron will be provided to site personnel prior to commissioning the system in Unit 2.

ii. The LEFM CheckPlus System is designed and manufactured in accordance with Cameron's 10 CFR 50 Appendix B Quality Assurance Program and its Verification and Validation (V&V) program. Cameron's V&V program fulfills the requirements of ASME NQA-2-2009 Subpart 2.7, "Quality Assurance Requirements for Computer Software for Nuclear Facility Applications."

iii. Corrective actions involving maintenance will be performed by site I&C personnel qualified in accordance with the I&C Training Program and formally trained on the LEFM CheckPlus System.

iv. The LEFM CheckPlus System is included in the System Health Plan and the preventive maintenance program at STP Unit 1 & Unit 2. The system is monitored by the System Engineer for reliability. As a plant system, any equipment problems are governed by the STPNOC work control process. All conditions that are adverse to quality are documented under the Corrective Action Program using a Condition Report. The software falls under the STPNOC Appendix B QA program with a software QA plan in place. Procedures are maintained for notification of deficiencies and error reporting.

v. The STP Unit 1 & Unit 2 LEFM CheckPlus System is under Cameron's V&V Program and procedures are maintained for user notification of important deficiencies.

g. The proposed time for operation with a non-functional LEFM CheckPlus System is 72 hours, provided steady state conditions persist with no power changes in excess of 10%. There are four bases for this proposed time period:

- There is an on-line calibration of the venturi instruments to be used if the LEFM CheckPlus System is non-functional for up to 72 hours. These alternate instruments will be calibrated to the last good value provided by the LEFM CheckPlus System and their accuracy will gradually degrade over time. The gradual accuracy degradation is likely to be imperceptible for a 72-hour period provided steady state conditions persist.
- Seventy-two hours gives plant personnel time to make repairs and to verify normal operation of the LEFM CheckPlus System within its original uncertainty bounds at the same power level and indications as before the failure.
- STPNOC will operate based on the calibrated venturi instruments as soon as an LEFM CheckPlus System is non-functional. Performing a de-rate evolution could in many cases be avoided altogether since a repair would most likely be accomplished prior to the expiration of the 72-hour period.
- If the plant experiences a power change of greater than 10% during the 72-hour period, then the permitted maximum power level would be reduced upon return to full power in accordance with the power levels described in Section h. below, since a plant transient may result in calibration changes of the venturi instruments.

h. Plant procedures presently govern operation at the existing licensed rated thermal power (RTP) of 3,853 MWt when the Crossflow UFM System is functional and operation at 3,838 MWt when the Crossflow UFM System is non-functional. Plant procedures will be revised to govern operation when the LEFM CheckPlus System is functional and non-functional.

The LEFM System has uncertainty values which support operating at the existing RTP of 3,853 MWt. The redundant CheckPlus mode has the lowest uncertainty value and the Check mode has a higher uncertainty value of $\leq$0.6% (see Attachment 1). Operating in either the CheckPlus or the Check mode will ensure that the secondary power is within the existing licensed 0.6% uncertainty and therefore within the RTP of 3,853 MWt.

During commissioning, the lab-calibrated venturis will be corrected to match the LEFM CheckPlus flow indication. This in-situ calibration value will be captured in the plant procedure for venturi calibration. While the LEFM is functioning in either the CheckPlus or Check mode of operation, the plant computer will trend a ratio between the individual loop LEFM indications and the individual loop venturi indications (in-situ calibrated venturis).

The redundant LEFM central processing units continuously monitor system performance and the mode of operation. Alerts are sent through the plant computer to the operator when the LEFM System changes from the CheckPlus mode of operation to another mode, including a non-functional or "Fail" mode.

The LEFM System will alert the operator if the LEFM System is in the "Fail" mode. At that time, the LEFM System will be declared non-functional and a 72-hour repair window will be initiated. Additionally, at that time the LEFM System alert will "freeze" the plant computer ratio between the LEFM and the in-situ calibrated venturis and apply it as a correction factor to the in-situ calibrated venturis, producing a "corrected venturi" indication. During the repair window, the units can continue to operate at the 3,853 MWt RTP value using the corrected venturis as long as neither the 72-hour window expires nor a 10% power change occurs. If either the 72-hour window expires or a 10% power change occurs, plant procedures will direct operators to limit power to 3,838 MWt by the in-situ calibrated venturis. This is the current NRC-approved limit for operation with the Crossflow UFM System non-functional.

Station procedures will control LEFM calibration, maintenance, and trending activities, and the frequency of each. In addition, long term trending and data collection of other plant parameters will be performed. Plant parameters that may be trended are the ratio of generator output to circulating water temperature, the output from independent secondary calorimetric software, measurements of High Pressure turbine first stage pressure, and the difference between hot leg and cold leg primary temperature. These parameters will be evaluated for use as proposed methods in substantiating the accuracy of the LEFM System.

Operation of the LEFM CheckPlus System as described above will ensure that the plant operates within the uncertainty analyses.

Table 1 – Uncertainty Comparison

AMAG CROSSFLOW UFM			CAMERON - LEFM - Check Plus			CAMERON - LEFM - Check Plus at STP		
Uncertainty Type	**Uncertainty (%)**	**References/ Notes**	**Uncertainty Type**	**Uncertainty (%)**	**References/ Notes**	**Uncertainty Type**	**Uncertainty (%)**	**References/ Notes**
Mass Flow Uncertainty - Capability	0.50%	CENPD-397-P-A*	**Volumetric** Flow Uncertainty Capability	0.266%	ER-157(P-A) Rev.8*, ** (Table A-1, page A-44)	**Mass** Flow Uncertainty	0.5% ****	Enclosure 1 Attachments 1 and 2
Ultrasonic Flow Uncertainty Input to Power Calorimetric	1.00% Power	NRC SE (ML020800263) Quality Calc*** (ML020520549)	Ultrasonic Flow Uncertainty Input to Power Calorimetric	0.266%	ER-157(P-A) Rev.8*, ** (Table A-1, page A-44)	Ultrasonic Flow Uncertainty Input to Power Calorimetric	0.5% (95% confidence) ****	Enclosure 1 Attachments 1 and 2
Power Calorimetric Uncertainty	0.60%	WCAP - 156333 (0.60% for the average of 4 loops)	Ultrasonic Flow Based Power Calorimetric Uncertainty	0.336%	ER-157(P-A) Rev.8*, ** (Table A-1, page A-45)	Ultrasonic Flow Based Power Calorimetric Uncertainty - **STP Unchanged**	0.6% ****	Enclosure 1 Attachments 1 and 2

* - The uncertainty values were obtained from the NRC approved vendors' topical reports.

** - The uncertainty values are based on a two-loop, 14-inch piping system described in ER-157(P-A).

*** - 0.97 for 95% confidence

**** - **with 1 plane out of service (bounds lower uncertainty for both planes in service)**

ENCLOSURE 3

Technical Specification Page
(Marked-up)

6.9.1.6b (continued)

5. Westinghouse Letter NS-TMA-2198, T.M. Anderson (Westinghouse) to K. Kniel (Chief of Core Performance Branch, NRC) January 31,1980 – Attachment: Operation and Safety Analysis Aspects of an Improved Load Follow Package.

(Methodology for Specification 3.2.1 - Axial Flux Difference (Constant Axial Offset Control). Approved by NRC Supplement No. 4 to NUREG-0422, January 1981, Docket Nos. 50-369 and 50-370.)

6. NUREG-0800, Standard Review Plan, U. S. Nuclear Regulatory Commission, Section 4.3, Nuclear Design, July 1981. Branch Technical Position CPB 4.3-1, Westinghouse Constant Axial Offset Control (CAOC), Rev. 2, July 1981.

(Methodology for Specification 3.2.1 - Axial Flux Difference (Constant Axial Offset Control).)

7. WCAP-10266-P-A, Rev. 2, WCAP-11524-NP-A Rev. 2, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code," Kabadi, J.N., et al., March 1987; including Addendum 1-A, "Power Shape Sensitivity Studies," December, 1987 and Addendum 2-A, "BASH methodology Improvements and Reliability Enhancement," May 1988.

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor)

8.1 WCAP-12610-P-A, "Vantage+ Fuel Assembly Reference Core Report," April 1995 (W Proprietary)

8.2 WCAP-12610-P-A & CENPD-404-P-A, Addendum 1-A, "Optimized ZIRLO™," July 2006 (W Proprietary)

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor)

9. CENPD-397-P-A, Revision 01 , "Improved Flow Measurement Accuracy Using Crossflow Ultrasonic Flow Measurement Technology," May 2000.

(Methodology for operating at a RATED THERMAL POWER of 3,853 Mwt **with Crossflow UFM System**)

9a. Cameron Measurement Systems/Caldon Ultrasonics Engineering Report: ER-157(P-A) Rev. 8 and Rev. 8 Errata, "Supplement to Caldon Topical Report ER-80P: Basis for Power Uprates with an LEFM Check or an LEFM CheckPlus System," May 2008.

(Methodology for operating at a RATED THERMAL POWER of 3,853 Mwt with LEFM CheckPlus System)

ENCLOSURE 4

Cameron Applications for Withholding Proprietary Information from Public Disclosure

Measurement Systems

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CAMERON

August 4, 2014
CAW 14-03

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

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: Cameron Engineering Report ER-1059 Rev. 1 "Bounding Uncertainty Analysis for Thermal Power Determination at South Texas Project Units 1 and 2 Using the LEFM✓+ System"

Gentlemen:

This application for withholding is submitted by Cameron International Corporation, a Delaware Corporation (herein called "Cameron") on behalf of its operating unit, Caldon Ultrasonics Technology Center, pursuant to the provisions of paragraph (b)(1) of Section 2.390 of the Commission's regulations. It contains trade secrets and/or commercial information proprietary to Cameron 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 2.390, Affidavit CAW 14-03 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 Cameron, be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to this application for withholding or the accompanying affidavit should reference CAW 14-03 and should be addressed to the undersigned.

Very truly yours,

Ernest M. Hauser
Director of Sales

Enclosures (Only upon separation of the enclosed confidential material should this letter and affidavit be released.)

August 4, 2014
CAW 14-03

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared Ernest M. Hauser, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Cameron International Corporation, a Delaware Corporation (herein called "Cameron") on behalf of its operating unit, Caldon Ultrasonics Technology Center, and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

Ernest M. Hauser
Director of Sales

Sworn to and subscribed before me

this 4 day of

August, 2014

Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
MICHELLE K. O'BOSKY, Notary Public
Robinson Twp., Allegheny County
My Commission Expires October 22, 2017

1. I am the Director of Sales of Caldon Ultrasonics Technology Center, 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 Cameron.

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 Cameron application for withholding accompanying this Affidavit.

3. I have personal knowledge of the criteria and procedures utilized by Cameron in designating information as a trade secret, privileged or as confidential commercial or financial information.

4. Cameron requests that the information identified in paragraph 5(v) below be withheld from the public on the following bases:

   Trade secrets and commercial information obtained from a person and privileged or confidential

   The material and information provided herewith is so designated by Cameron, in accordance with those criteria and procedures, for the reasons set forth below.

5. 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 Cameron.

   (ii) The information is of a type customarily held in confidence by Cameron and not customarily disclosed to the public. Cameron 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 Cameron 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 Cameron's competitors without license from Cameron 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 Cameron, its customer or suppliers.

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

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

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (a), (b) and (c), above.

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

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

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

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

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

(f) The Cameron 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 §§ 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 manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld are the submittals titled:

Cameron Engineering Report ER- 1059 Rev. 1 "Bounding Uncertainty Analysis for Thermal Power Determination at South Texas Project Units 1 and 2 Using the LEFM✓+ System"

- Pages 1, 2, 4, 5, and 7 contain partial proprietary information
- Appendix A.1, A.2, A.4, and A.5 are Proprietary in their entirety
- Appendix A.3 – contains partial proprietary information

It is designated therein in accordance with 10 CFR §§ 2.390(b)(1)(i)(A,B), with the reason(s) for confidential treatment noted in the submittal and further described in this affidavit. This information is voluntarily submitted for use by the NRC Staff in their review of the accuracy assessment of the proposed methodology for the LEFM CheckPlus C System used by South Texas Project Units 1 and 2 for flow measurement at the licensed reactor thermal power level of 3,853 MWt.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Cameron 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 Cameron effort and the expenditure of a considerable sum of money.

In order for competitors of Cameron 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.

Measurement Systems

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CAMERON

August 4, 2014
CAW 14-04

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

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: Cameron Engineering Report ER-1060 Rev. 1 "Meter Factory Calculation and Accuracy Assessment for South Texas Project Unit 1 and 2"

Gentlemen:

This application for withholding is submitted by Cameron International Corporation, a Delaware Corporation (herein called "Cameron") on behalf of its operating unit, Caldon Ultrasonics Technology Center, pursuant to the provisions of paragraph (b)(1) of Section 2.390 of the Commission's regulations. It contains trade secrets and/or commercial information proprietary to Cameron 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 2.390, Affidavit CAW 14-04 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 Cameron, be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to this application for withholding or the accompanying affidavit should reference CAW 14-04 and should be addressed to the undersigned.

Very truly yours,

Ernest M. Hauser
Director of Sales

Enclosures (Only upon separation of the enclosed confidential material should this letter and affidavit be released.)

August 4, 2014
CAW 14-04

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared Ernest M. Hauser, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Cameron International Corporation, a Delaware Corporation (herein called "Cameron") on behalf of its operating unit, Caldon Ultrasonics Technology Center, and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

Ernest M. Hauser
Director of Sales

Sworn to and subscribed before me

this 4 day of

August, 2014

Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
MICHELLE K. O'BOSKY, Notary Public
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1. I am the Director of Sales of Caldon Ultrasonics Technology Center, 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 Cameron.

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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 Cameron's competitors without license from Cameron 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 Cameron, its customer or suppliers.

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

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

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(iii) The information is being transmitted to the Commission in confidence, and, under the provisions of 10 CFR §§ 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 manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld are the submittals titled:

Cameron Engineering Report ER- 1060 Rev. 1 "Meter Factor Calculation and Accuracy Assessment for South Texas Project Units 1 and 2"

- Table of Contents page ii contain partial proprietary information
- Pages 3, 4, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, and 27 contain partial proprietary information

It is designated therein in accordance with 10 CFR §§ 2.390(b)(1)(i)(A,B), with the reason(s) for confidential treatment noted in the submittal and further described in this affidavit. This information is voluntarily submitted for use by the NRC Staff in their review of the accuracy assessment of the proposed methodology for the LEFM CheckPlus C System used by South Texas Project Units 1 and 2 for flow measurement at the licensed reactor thermal power level of 3,853 MWt.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Cameron 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 Cameron effort and the expenditure of a considerable sum of money.

In order for competitors of Cameron 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.