Entergy

Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150
Tel 601 437 6409
Fax 601 437 2795

William A. Eaton
Vice President,
Operations
Grand Gulf Nuclear Station

GNRO-2002/00008

January 31, 2002

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

SUBJECT: Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License Amendment Request
Appendix K Measurement Uncertainty Recovery – Power Uprate Request

Dear Sir or Madam:

Pursuant to 10CFR50.90, Entergy Operations, Inc. (Entergy) requests approval of changes to the Grand Gulf Nuclear Station, Unit 1 (GGNS) Operating License and Technical Specifications associated with an increase in the licensed power level. The changes involve a proposed increase in the power level from 3,833 MWt to 3898 MWt. These changes result from increased feedwater flow measurement accuracy to be achieved by utilizing high accuracy ultrasonic flow measurement instrumentation. The instrumentation was installed during the last outage (April 2001). The proposed changes are described in Attachment 1.

Entergy has proposed only those license and Technical Specification (TS) changes that are required in order to implement the increased power level.

The proposed change has been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in the attached submittal.

Entergy requests that the effective date for this TS change to be within 60 days of issuance. Although this request is neither exigent nor emergency, your prompt review and approval prior to June 1, 2002 is requested. Entergy would like to implement the increased power to support summer loads.

Entergy notes that various General Electric and Framatome topical reports that are a part of the GGNS licensing basis (e.g., NEDE-20566-P – GE's Analytical Model for Appendix K LOCA Analysis) may have included explicit references to the use of "102% of licensed core power levels." Entergy does not consider that these topical reports require revision to reflect this requested power uprate. Rather, it will be understood that those statements refer to the Appendix K margin and the original licensed power level.

A001

Note that the report in Attachment 2, General Electric Report NEDC-33048P is proprietary. An affidavit signed by an officer of General Electric is provided in the front of the document. It is requested that this proprietary information be withheld from public disclosure. This request is made pursuant to 10CFR2.790. The address of General Electric is provided in the cover page of the report included in Attachment 2. Note that a non-proprietary version is planned and will be submitted by the early March.

A summary of the commitments associated with the implementation of this request is provided in Attachment 4. Should you have any questions or comments concerning this request, please contact Jerry Burford at (601) 368-5755.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 31, 2002.

Sincerely, William A Eaton

WAE/FGB
attachments:
1. Analysis of Proposed Technical Specification Change
2. General Electric Topical Safety Analysis Report, NEDC-33048P
3. Proposed Technical Specification Changes (mark-up)
4. List of Regulatory Commitments

cc: Mr. Ellis W. Merschoff
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Mr. S. P. Sekerak
NRR Project Manager Region IV
U. S. Nuclear Regulatory Commission
Mail Stop 07D1
Washington, DC 20555-0001

Mr. T. L. Hoeg, GGNS Senior Resident
Mr. D. E. Levanway (Wise Carter)
Mr. L. J. Smith (Wise Carter)
Mr. N. S. Reynolds
Mr. H. L. Thomas

Attachment 1

GNRO-2002-00008

Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License(s) NPF-29 for Grand Gulf Nuclear Station, Unit 1 (GGNS).

Entergy Operations, Inc. (Entergy) is proposing that the GGNS Operating License be amended to reflect an increase in the licensed reactor power level from 3,833 MWt to 3,898 MWt (an approximate 1.7% increase). These changes result from increased feedwater flow measurement accuracy to be achieved by utilizing high accuracy ultrasonic flow measurement instrumentation.

2.0 PROPOSED CHANGE

The proposed license amendment would revise the GGNS Operating License and Technical Specifications to increase licensed power level to 3898 MWt, or 1.7% greater than the current level of 3833 MWt. The proposed changes are indicated on the marked up pages in Attachment 3 and are described below:

1. Paragraph 2.C.(1) in Facility Operating License NPF-29 is revised to authorize operation at a steady state reactor core power level not in excess of 3898 megawatts (100 percent power).

2. The definition of RATED THERMAL POWER in Technical Specification (TS) 1.1 is revised to reflect the increase from 3833 MWt to 3898 MWt.

Entergy has conducted a review to identify if other Operating License or Technical Specification changes are needed. The conclusion of that review is that there are no additional changes to accommodate the change in the definition of RATED THERMAL POWER. In summary, the proposed changes recognize the increased accuracy of the plant instrumentation and will satisfy 10CFR50 Appendix K. Based on a rule change during the year 2000, this increased accuracy may be used to support a measurement uncertainty recovery power uprate.

3.0 BACKGROUND

On June 1, 2000, a revision to 10CFR50, Appendix K was issued to be effective on July 31, 2000. The stated objective of this rulemaking was to reduce an unnecessarily burdensome regulatory requirement. Appendix K was originally issued to ensure an adequate performance margin of the Emergency Core Cooling System (ECCS) in the event a design-basis Loss of Coolant Accident (LOCA) was to occur. The margin is provided by conservative features and requirements of the evaluation models and by the ECCS performance criteria. The original regulation did not require the power measurement uncertainty be demonstrated, but rather mandated a 2% margin. The new rule allows licensees to justify a smaller margin for power measurement uncertainty. Because there will continue to be substantial conservatism in other Appendix K requirements, sufficient margin to ECCS performance in the event of a LOCA will be preserved.

However, the final rule, by itself, did not allow increases in licensed power levels. Because the licensed power level for a plant is a technical specification limit, proposals to raise the licensed power level must be reviewed and approved under the license amendment process. The license amendment request includes a justification of the reduced power measurement uncertainty and the basis for the modified ECCS analysis. These items are addressed in Attachment 2.

GGNS is currently licensed to operate at a maximum power level of 3833 MWt, which includes a 2% margin in the ECCS evaluation model to allow for uncertainties in core thermal power measurement as was previously required by 10CFR50, Appendix K. Appendix K has since been revised to permit licensees to use an assumed power level less than 1.02 times the licensed power level, provided the new power level is demonstrated to account for uncertainties due to power level instrument error.

GGNS has installed a Caldon LEFM CheckPlus™ (,+™) System for feedwater flow measurement. Use of the LEFM ,+™ System will reduce the calorimetric core power measurement uncertainty to $\leq$ 0.3%. Based on this, Entergy is proposing to reduce the power measurement uncertainty required by 10CFR50, Appendix K to permit an increase of 1.7% in the licensed power level. The reduction in power measurement uncertainty does not constitute a significant change to the emergency core cooling system (ECCS) evaluation model as defined in 10CFR50.46(a)(3)(i).

Uncertainty in feedwater flow measurement is the most significant contributor to core power measurement uncertainty. Use of the LEFM ,+™ System provides a more accurate measurement of feedwater flow than the instrumentation originally installed at GGNS. Caldon Topical Report ER-80P, as supplemented by Engineering Report ER-157P, documents the theory, design and operating features of the system and its ability to achieve increased accuracy of flow measurement. In a Safety Evaluation dated March 1999, the NRC approved ER-80P for referencing in license applications for power uprate. ER-157P, which supplements ER-80P, was provided for NRC review on July 6, 2001 by Entergy (Letter number CNRO-2001-00029). The NRC has issued a Safety Evaluation dated 12/20/01 approving ER-157P. Additional details regarding the LEFM ,+™ System and its application at GGNS are provided in the following discussion.

4.0 TECHNICAL ANALYSIS

The Grand Gulf Nuclear Station is presently licensed for a full core power rating of 3833 MWt. Through the use of more accurate feedwater flow measurement equipment, approval is sought to increase licensed core power level by 1.7% to 3898 MWt. Entergy Operations Incorporated (EOI) has evaluated the impact of the proposed core power uprate on nuclear steam supply system (NSSS) systems and components, balance of plant (BOP) systems, and safety analyses. The results of EOI's evaluation are summarized in Attachment 2 of this submittal. The results of all analyses and evaluations performed demonstrate that all acceptance criteria will continue to be met.

4.1 GENERAL LICENSING APPROACH FOR PLANT ANALYSES USING PLANT POWER LEVEL

Rated thermal power is used as an input to most plant safety, component, and system analyses. Analyses for which a 2% increase was applied to the initial power level to account solely for the power measurement uncertainty do not need to be re-performed for the 1.7% uprate conditions. This is based on the fact the sum of increased core power level (1.7%) and the decreased power measurement uncertainty ($\leq$ 0.3%) fall within the previously analyzed conditions.

The power calorimetric uncertainty calculation described in section 4.2.5 below indicates that with the LEFM CheckPlus™ (,+™) system installed, the power measurement uncertainty (based on a 95-percent probability at a 95-percent confidence interval) is $\leq$ 0.3%. Thus, these analyses only need to reflect a 0.3% power measurement uncertainty. Accordingly, the existing 2% uncertainty can be allocated such that 1.7% is applied to provide sufficient margin to address the uprate to 3898 MWt, and 0.3% is retained in the analysis to still account for the power measurement uncertainty.

Core and fuel performance analyses described in Attachment 2 will be reanalyzed or reevaluated on a cycle-specific basis. Other analyses performed at a nominal power level have either been evaluated or re-performed for the 1.7% increased power level. The results demonstrate that the applicable analysis acceptance criteria continue to be met at the 1.7% uprate conditions.

Some analyses already employ a core power level greater than the proposed 3898 MWt. For these analyses, some of this available margin has been used to offset the 1.7% uprate, and the analyses have been evaluated to confirm that sufficient analysis margin exists to envelope the 1.7% uprate.

4.2 LEFM ULTRASONIC FLOW MEASUREMENT

The LEFM system is based upon ultrasonic transit time principles to determine fluid velocity. This flow measurement method yields highly accurate flow readings and has been approved by the NRC for power uprate applications as documented in Caldon Topical Report ER-80P, Rev.0.

4.2.1 Use of LEFM To Determine Calorimetric Power

The LEFM CheckPlus™ system measures transit times of pulses of ultrasonic energy traveling multiple acoustic paths, both with the flow and against it, which form two orthogonal measurement planes. From these measurements, the system forms multiple path length fluid velocity products, which are numerically integrated to determine volumetric flow. The system also measures sound velocity along the acoustic paths which, along with feedwater pressure inputs, are used to determine fluid temperature and density. The LEFM CheckPlus™ system then calculates mass flow, and transmits the signals to the Plant Computer for use in thermal power calculations. This power determination will be used directly to calibrate the plant's nuclear power instruments in accordance with Technical Specification Surveillance Requirements.

The Caldon LEFM Check™ System has eight transducers mounted at both ends of four measurement paths arranged at different chord lengths across a single plane. The

allowance of 0.6% in total power measurement uncertainty when using the Caldon LEFM,™ System was derived by Caldon in ER-80P, and received NRC approval in March 1999 to support a 1.0% power uprate. Supplement ER-160P was later issued to support a power uprate of 1.4% when using the Caldon LEFM,™ System. ER-160P has been previously reviewed and approved by the NRC in connection with a similar license amendment request submitted for the Watts Bar Nuclear plant. The NRC staff approved the report in its January 19, 2001 Safety Evaluation (SE) for Watts Bar (ADAMS accession number ML010260074).

The Caldon LEFM,+™ System is similar to the LEFM,™ System, except that it has 16 transducers on eight acoustic measurement paths grouped into two orthogonal planes with four measurement paths in each plane. The LEFM,+™ System is essentially two LEFM,™ Systems combined. In order to ensure independence, each measurement plane employs its own timing clock in the LEFM,+™ System. As a result, the LEFM,+™ System provides feedwater flow measurement that is more accurate than that provided by a LEFM,™ System. Superiority in measurement accuracy arises from two distinct advantages in the LEFM,+™ System, both of which are described in Caldon Report ER-157P. These advantages are:

- Because of the orthogonal geometry of the two measurement planes, any transverse components of the fluid velocity will be cancelled out when the two companion measurements in each plane are averaged. The average of two numerical integrations of four pairs of axial velocity measurements in orthogonal planes is inherently more accurate than the integration of four measurements in a single plane.
- Because there are twice as many measurements being taken, the total statistical error due to uncertainties in both transit time measurements and path length geometry is reduced. This advantage arises due to the statistical treatment of the uncertainties, the mathematics of which are supported by ANSI/ASME Power Test Code PTC 19.1-1985.

The individual contributions to mass flow measurement uncertainty by the two Caldon systems are tabulated for comparison in Table 1 of ER-157P. This table identifies the differences between the uncertainties associated with the two LEFM systems and provides an association with the two advantages of the LEFM,+™ System listed above. This table shows that the accuracy of the LEFM,+™ System exceeds the accuracy of the LEFM,™ System.

4.2.2 LEFM Failure

The redundancy inherent in the two measurement planes of an LEFM,+™ makes the system resistant to component failures. Continued operation at the uprate power is justified with a LEFM,+™ system for any single component failure. The system features automatic self-checking. A continuously operating on-line test is provided to verify that the digital circuits are operating correctly and within the specified accuracy envelope. The on-line monitoring and diagnostics tests include the acoustic processing unit transmitters, timing circuits, signal quality, path sound velocity, hydraulic profile as represented by path velocities, and active computation as reported by watchdog timers. The system provides display and storage of verification test results. Failure messages are generated if system failure events are detected.

The LEFM,+™ feedwater mass flow and temperature inputs will also be used to adjust or 'calibrate' the feedwater venturi-based signals. Additionally, the LEFM,+™ temperature input will be used to continuously adjust or 'calibrate' the feedwater temperature element input. If the LEFM,+™ system becomes inoperable, control room operators are promptly alerted by control room computer indications . The reactor thermal power will then be administratively controlled at a level consistent with the accuracy of the available instrumentation until such time as the LEFM,+™ system is returned to an operable status. The uncertainties of the venturi and temperature element based inputs are expected to increase over time due to drift and ambient temperature uncertainty effects, and will be compensated for in the administrative controls. The administrative controls will be added to the GGNS Technical Requirements Manual.

The GGNS calorimetric power measurement uncertainties using the LEFM,+™ system are described in Attachment 2, Section 1.4.

4.2.3 Maintenance and Calibration

Calibration and maintenance of the LEFM system are performed using site procedures developed from the Caldon LEFM,+™ System technical manuals. All work is performed in accordance with site work control procedures. Verification of system operation is provided by the previously discussed self-checking system.

4.2.4 Training

Appropriate personnel will receive training on the Caldon LEFM,+™ System. Initial training was provided to site personnel by the vendor. Operations personnel will receive training on plant procedures affected by power uprate as part of the normal training process.

4.2.5 Uncertainty Determination Methodology

Caldon has completed the GGNS LEFM,+™ System uncertainty calculation indicating a mass flow inaccuracy of $\leq$ 0.3% of rated flow for the site-specific installation. The calculations are consistent with the methodology described in Topical Report ER-80P as supplemented by Engineering Report ER-157P. The uncertainty calculation supports an overall uncertainty in the reactor power measurement of 0.3%. The uncertainty is at a 95% probability and 95% confidence level. Section 1.4 of Attachment 2 provides a discussion for uncertainty in the GGNS heat balance using the LEFM,+™ system.

LEFM,+™ System operating procedures will ensure that the assumptions and requirements of the uncertainty calculation remain valid.

4.2.6 Monitoring, Verification and Error Reporting

Although use of the LEFM,+™ System for this application is non-safety related, the system is designed and manufactured under the vendor's standard quality control program, which provides for configuration control, deficiency reporting and correction, and maintenance. However, system software and laboratory calibration tests are required to meet the requirements of 10CFR50, Appendix B. The software also meets the requirements of Entergy software control procedure IT-104 for Class B software.

4.2.7 Hydraulic Modeling

The LEFM,+™ spool pieces were calibrated at Alden Research Laboratory (ARL). A review of the observed profiles for the various pipe models at ARL and the observed profiles at the plant with the newly installed LEFM,+™ was conducted as part of the review for the final commissioning by Caldon, Inc. Differences were considered in the overall plant calorimetric uncertainty analysis which bounds the total mass flow value to +/- 0.29%, in support of a total power uncertainty of +/- 0.3%.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met. As described in Section 3.0 above, a change to 10CFR50 Appendix K to recognize that the uncertainty of the plant instrumentation was conservatively bounded by the 2% required to be assumed in the original Appendix K. With the proposed power uprate, GGNS continues to meet the requirements of 10CFR50.46 and 10CFR50 Appendix K.

Entergy has determined that the proposed changes do not require any exemptions or relief from any regulatory requirements, other than the TS (see Attachment 3), and do not affect conformance with any GDC differently than described in the SAR.

5.2 No Significant Hazards Consideration

Entergy Operations, Inc. (Entergy) is proposing that the Grand Gulf Nuclear Station Operating License be amended to reflect an increase in the licensed reactor power level from 3,833 MWt to 3,898 MWt. These changes result from increased accuracy of the feedwater flow and temperature measurements to be achieved by utilizing high accuracy ultrasonic flow measurement instrumentation. The basis for this change is consistent with the revision to 10CFR50 Appendix K issued in June 2000.

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," 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 comprehensive analytical efforts performed to support the proposed change included a review of the Nuclear Steam Supply System (NSSS) systems and components that could be affected by this change. All systems and components will

function as designed, and the applicable performance requirements have been evaluated and found to be acceptable.

The comprehensive analytical efforts performed to support the proposed uprate conditions included a review and evaluation of all components and systems that could be affected by this change. Evaluation of accident analyses confirmed the effects of the proposed uprate are bounded by the current dose analyses. All systems will function as designed, and all performance requirements for these systems have been evaluated and found acceptable. Because the integrity of the plant will not be affected by operation at the uprated condition, it is concluded that all structures, systems, and components required to mitigate a transient remain capable of fulfilling their intended functions. The reduced uncertainty in the flow input to the power calorimetric measurement allows the current safety analyses to be used, with small changes to the core operating limits, to support operation at a core power of 3,898 megawatts thermal (MWt). As such, all Final Safety Analysis Report (FSAR) Chapter 15 accident analyses continue to demonstrate compliance with the relevant event acceptance criteria. Those analyses performed to assess the effects of mass and energy releases remain valid. The source terms used to assess radiological consequences have been reviewed and determined to either bound operation at the 1.7 percent uprated condition, or new analyses were performed to verify all acceptance criteria continue to be met.

Therefore, the proposed change does not involve a significant increase in 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.

No new accident scenarios, failure mechanisms, or limiting single failures are introduced as a result of the proposed changes. All systems, structures, and components previously required for the mitigation of a transient remain capable of fulfilling their intended design functions. The proposed changes have no adverse effects on any safety-related system or component and do not challenge the performance or integrity of any safety related system.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

Response: No.

Operation at the uprated power condition does not involve a significant reduction in a margin of safety. Analyses of the primary fission product barriers have concluded that all relevant design criteria remain satisfied, both from the standpoint of the integrity of the primary fission product barrier and from the standpoint of compliance with the required acceptance criteria.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment(s) present 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.

5.3 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10CFR51.22(c)(9). Therefore, pursuant to 10CFR51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 PRECEDENCE

Similar amendment requests have been approved for:

Facility	Amendment(s)	Approval Date	Accession #
San Onofre 2 & 3	180, 171	July 6, 2001	ML011870421
Watts Bar	31	January 19, 2001	ML010260074

In addition, a similar request for another Entergy facility, Waterford 3, is currently under NRC review (see accession # ML012700104).

Attachment 3

GNRO-2002-00008

Proposed Technical Specification Changes (mark-up)

(b) SERI is required to notify the NRC in writing prior to any change in (i) the terms or conditions of any new or existing sale or lease agreements executed as part of the above authorized financial transactions, (ii) the GGNS Unit 1 operating agreement, (iii) the existing property insurance coverage for GGNS Unit 1 that would materially alter the representations and conditions set forth in the Staff's Safety Evaluation Report dated December 19, 1988 attached to Amendment No. 54. In addition, SERI is required to notify the NRC of any action by a lessor or other successor in interest to SERI that may have an effect on the operation of the facility.

C. The license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

Entergy Operations, Inc. is authorized to operate the facility at reactor core power levels not in excess of ~~3833~~ 3898 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 148 are hereby incorporated into this license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

1.1 Definitions

LOGIC SYSTEM FUNCTIONAL TEST (continued)	be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE—OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of ~~3833~~ 3898 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

(continued)

Attachment 4

GNRO-2002-00008

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
The reactor thermal power will then be administratively controlled at a level consistent with the accuracy of the available instrumentation until such time as the LEFM CheckPlus™ system is returned to an operable status. .... The administrative controls will be added to the GGNS Technical Requirements Manual.		X	**upon implementation**
The plant erosion/corrosion program currently monitors the affected systems. Continued monitoring of the systems provides confidence in the integrity of susceptible high energy piping systems. Appropriate changes to piping inspection frequency will be implemented to ensure adequate margin exists for those systems with changing process conditions. (TSAR Section 3.5.2)		X	**upon implementation**
PCS (pressure control system) tests, will be performed during the power ascension phase (Section 10.4). (TSAR Section 5.2.1)	X		**upon implementation**
Per the guidelines of Appendix L of the TLTR, the performance of the FW/level control systems will be recorded at 95% and 100% of CLTP and confirmed at the TPO RTP during power ascension. These checks will demonstrate acceptable operational capability. (TSAR Section 5.2.2)	X		**upon implementation**

In preparation for operation at TPO uprated conditions, routine measurements of reactor and system pressures and flows, and vibration measurements on selective rotating equipment will be taken near 95% and 100% of CLTP, and retaken at 100% of TPO RTP. (TSAR Section 10.4)	X		**upon implementation**
Demonstration of acceptable fuel thermal margin will be performed prior to power ascension to the TPO RTP at the 100% CLTP steady-state heat balance point. Fuel thermal margin will be calculated for the TPO RTP point after the measurements taken at 95% and 100% of CLTP to project the estimated margin. (TSAR Section 10.4)	X		**upon implementation**
The response of the pressure and FW/level control systems will be recorded at each steady-state point defined above to demonstrate acceptable operational capability. Water level changes of ±3 inches and pressure setpoint changes of 3 psi will be used to evaluate performance. (TSAR Section 10.4)	X		**upon implementation**
Minor changes to the power/flow map, flow-referenced setpoint, and the like, will be communicated through normal operator training. Simulator changes and validation for the TPO uprate will be performed in accordance with ANSI/ANS 3.5-1985. (TSAR Section 10.6)		X	**upon implementation**
Prior to operation beyond 32 EFPY, the P-T curves would be revised to account for a shift value of 91F (a 3F increase), which represents 35 EFPY.	X		**upon implementation**