Entergy

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July 5, 2002

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

SUBJECT: Pilgrim Nuclear Power Station
Docket 50-293
License No. DPR-35
License Amendment Request
Appendix K Measurement Uncertainty Recovery – Power Uprate Request

LETTER NUMBER 2.02.048

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (ENO) requests approval of changes to the Pilgrim Nuclear Power Station (PNPS) 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 1998 MWt to 2028 MWt. These changes are requested due to improved feedwater flow measurement accuracy to be achieved by utilizing the highly accurate Westinghouse/AMAG CROSSFLOW ultrasonic flow measurement instrumentation. This improved instrumentation will be installed during Refueling Outage (RFO) 14 beginning in April 2003, in accordance with the vendor's NRC approved topical report. The proposed changes are described in Attachments 1-3. A list of commitments associated with the proposed power increase is provided in Attachment 4. All changes necessary to support operation above the current licensed thermal power will be completed prior to exceeding 1998 MWt.

ENO has proposed only those Operating License (OL) and Technical Specification (TS) changes that are required in order to implement the increased power level.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that these changes involve no significant hazards considerations. The bases for these determinations are included in Attachment 1 and Attachment 2.

ENO requests that the effective date for these proposed OL and TS changes be within 60 days of startup from RFO-14, which is currently planned for mid-May 2003. NRC review and approval by January 15, 2003, is requested to support outage activities necessary to implement the power uprate.

ENO notes that various General Electric (GE) topical reports that are a part of the PNPS licensing basis (e.g., NEDE- 20566P, GE's Analytical Model for Appendix K LOCA Analysis) may have included explicit references to the use of "102% of licensed core power levels."

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ENO 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.

Note that the report identified as Attachment 2, GE Report NEDC-33050P is proprietary. An affidavit signed by an authorized representative of GE is provided in the front of the document, pursuant to 10 CFR 2.790. It is requested that this proprietary information be withheld from public disclosure. A non-proprietary version of Attachment 2 is planned and will be submitted within two months of this submittal.

Should you have any questions or comments concerning this request, please contact Bryan Ford at (508) 830-8403.

Sincerely,

Charles M. Dugger

CMD/dd

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 5th of July 2002.

Attachments:
1. Analysis of Proposed License Amendment (12 pages)
2. General Electric Topical Safety Analysis Report, NEDC-33050P (82 pages)
3. Proposed Operating License, Technical Specification and Bases Changes (6 marked-up pages)
4. List of Regulatory Commitments (2 pages)

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Attachment 1

LETTER NUMBER 2.02.048

Analysis of Proposed License Amendment

1.0 DESCRIPTION

This letter is a request to amend Operating License (OL) DPR-35 and Technical Specifications (TS) for Pilgrim Nuclear Power Station (PNPS).

Entergy Nuclear Operations, Inc. (ENO) requests that the PNPS OL be amended to reflect an increase in the licensed reactor power level from 1998 MWt to 2028 MWt (an approximately 1.5% increase). These changes are requested due to improved feedwater flow measurement accuracy to be achieved by utilizing highly accurate ultrasonic flow measurement instrumentation.

2.0 PROPOSED CHANGES

The proposed license amendment revises the PNPS OL and TS to increase the steady state licensed power level to 2028 MWt (1.5% greater than the current level of 1998 MWt). The proposed changes indicated below are shown on marked-up pages in Attachment 3.

2.1 Paragraph 3.A in Facility OL DPR-35 is revised to authorize operation at a steady state reactor core power level not in excess of 2028 megawatts thermal (100 percent power).

2.2 The definition of DESIGN POWER in TS 1.0 is revised to reflect the increase from 1998 MWt to 2028 MWt.

2.3 Note 1D for Table 3.1.1 in the TS is revised to "Reduce power to less than 32.5% of design" instead of 45% of design.

The following bases changes will be made in the TS to support the proposed change in steady state power level:

2.4 Bases 3.1, REACTOR PROTECTION SYSTEM, page B3/4.1-2: Revise "45% of rated core thermal power" to "32.5% of rated core thermal power."

2.5 Bases 3.1, REACTOR PROTECTION SYSTEM, page B3/4.1-3: Revise design power from "1998 MWt" to "2028 MWt."

ENO has conducted a review to identify if other OL or TS changes are needed. The modification to the safety relief valves (SRVs) increases steam flow and the associated discharge loads. PNPS requests permission to use the alternate methodology, known as the Independent Support Motion (ISM) method to address these increased discharge loads. This method was previously used and is described in the Updated Final Safety Analysis Report (UFSAR) section 12.2.3.5.5. In addition, the installation and testing of the new high-pressure turbine may result in a setpoint change to Item 4 in the notes for Table 3.1.1. No other changes have been identified at this time.

3.0 BACKGROUND

On June 1, 2000, a revision to 10 CFR 50 Appendix K was issued. The 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 and for measurement uncertainty, 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 TS limit, proposals to raise the licensed power level must be reviewed and approved by the NRC. This license amendment request includes a justification of the reduced power measurement uncertainty and the basis for the adequacy of the ECCS analyses.

PNPS is currently licensed to operate at a maximum power level of 1998 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 10 CFR 50, 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.

PNPS will be installing an updated version of Westinghouse/AMAG CROSSFLOW ultrasonic flow measurement (UFM) system during the next refueling outage in accordance with the requirements of the vendor topical report. PNPS has several years of operating experience using a similar Westinghouse/AMAG system. Uncertainty in feedwater flow measurement is the most significant contributor to core power measurement uncertainty. Use of the CROSSFLOW UFM provides a more accurate measurement of feedwater flow than the feedwater venturi instrumentation originally installed at PNPS. Reference 1 documents the theory, design and operating features of the CROSSFLOW UFM and its ability to achieve increased accuracy of flow measurement, which is generically applicable to nuclear power plants. In Reference 2, the NRC documents the acceptability of the vendor topical report for referencing in license applications. Additional details regarding the CROSSFLOW UFM are provided in section 4.2.

Based on this, ENO is proposing to reduce the power measurement uncertainty required by 10 CFR 50 Appendix K to permit an increase of 1.5% in the licensed power level. The reduction in power measurement uncertainty does not constitute a significant change to the ECCS evaluation model as defined in 10 CFR 50.46(a)(3)(i).

4.0 TECHNICAL ANALYSIS

PNPS is presently licensed for a steady state power rating of 1998 MWt. Through the use of more accurate feedwater flow measurement equipment, approval is sought to increase licensed core power level by 1.5% to 2028 MWt. ENO has evaluated the impact of the proposed thermal power uprate on the nuclear steam supply system (NSSS), balance of plant (BOP) systems, and accident analyses. The results of these evaluations are provided in Attachment 2 of this submittal and demonstrate that all acceptance criteria will continue to be met. A discussion of these results and the associated modifications is provided below.

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. Many of the initial plant analyses used a factor of 1.02 above the licensed thermal power to account for power measurement uncertainty. The proposed power uprate requests NRC permission to operate at a steady state power level of 2028 MWt, which represents an increase of 1.5%. This is based on the fact the sum of increased core power level (1.5%) and the improved power measurement uncertainty ($\leq$ 0.5%) fall within the previously analyzed conditions. Compliance with the licensed steady state thermal power level (2028 MWt proposed) is maintained by operating procedures that prohibit intentionally exceeding the licensed steady state thermal power level. These procedures limit short-term thermal power changes consistent with the power averaging guidelines provided in NRC Inspection Manual Procedure 61706 to maintain the plant within the licensed steady thermal power limit.

The heat balance uncertainty calculation described in section 4.2.5 below will demonstrate that with the CROSSFLOW UFM system installed, the power measurement uncertainty (based on a 95-percent probability) will be $\leq$ 0.5%. Thus, these analyses only need to reflect a 0.5% power measurement uncertainty. Accordingly, the existing 2% margin can be allocated such that 1.5% is applied to address the uprate to 2028 MWt, and 0.5% is retained in the analysis to still account for the power measurement uncertainty.

Core and fuel performance analyses described in Attachment 2 are 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 1.5% increased power level. The results demonstrate that the applicable analysis acceptance criteria continue to be met at the 1.5% uprate conditions.

4.2 CROSSFLOW Ultrasonic Flow Measurement

The CROSSFLOW system consists of four (4) transducers mounted on the exterior of the feedwater piping, a signal conditioning unit (SCU), and a data processing computer (DPC). There is one upstream and one downstream transducer station, each having a transmitter and a receiver. Flow in the pipe affects the ultrasonic beam transmitted across the fluid in the pipe. Flow induced turbulence signatures from the upstream and downstream transducers are compared using the CROSSFLOW UFM software to obtain highly accurate feedwater flow rate measurements.

The cross-correlation UFM was first developed by Canadian General Electric for Ontario Hydro. The technique was optimized by Advanced Measurement Analysis Group, Inc. (AMAG), and ABB-CE (now Westinghouse). The improved cross-correlation flow meter is called "CROSSFLOW." This flow measurement system yields highly accurate flow readings and has been approved by the NRC for power uprate applications as documented in Reference 2.

4.2.1 Use Of CROSSFLOW To Determine Core Thermal Power

The increased flow measurement accuracy can be translated into a like improvement in the accuracy of the core power level calculation, due to the use of a more accurate feedwater flow in the heat balance calculation. CROSSFLOW software will interface with the plant computer and provide the necessary correction factor to improve the flow measurement accuracy.

4.2.2 CROSSFLOW Failure

The CROSSFLOW System will be externally mounted on the feedwater piping and no failure of the CROSSFLOW equipment will adversely impact the feedwater system.

Redundant systems are being installed to increase reliability. There will be online detection of nonconservative readings due to rapid defouling or component failure. Alarms are provided for signal abnormalities or loss of signal. In the event of failure of both UFM systems, operator actions will be taken in accordance with PNPS procedures controlling out of service time.

System accuracy and reliability are maintained through regular signal accuracy verification and diagnostic testing.

4.2.3 Maintenance and Calibration

PNPS procedures will be written to verify operability requirements and to address CROSSFLOW out of service conditions prior to exceeding current licensed thermal power and to ensure periodic In-service Inspections are made.

Calibration and maintenance of the CROSSFLOW system will be performed using site procedures developed from the CROSSFLOW System technical manuals. All work will be performed in accordance with site work control procedures. Verification of system operation is provided by the system software.

4.2.4 Training

Training for System Engineering, Operations and Maintenance personnel will be provided as part of implementation of the CROSSFLOW System.

4.2.5 Uncertainty Determination Methodology

PNPS has completed an initial CROSSFLOW System uncertainty calculation indicating a mass flow inaccuracy of $\leq$ 0.5% of rated flow for the new installation.

The uncertainty for both feedwater flow measurement and core thermal power calculation are determined as described below.

FEEDWATER FLOW MEASUREMENT UNCERTAINTY

$$\varepsilon_w = [\varepsilon_{cf}^2 + \varepsilon_A^2 + \varepsilon_L^2 + \varepsilon_{\Delta t}^2 + \varepsilon_\rho^2]^{1/2}$$

Where:

ε_{cf} = Flow Profile Correction Factor 95% Confidence Interval
ε_A = Pipe Cross Sectional Area 95% Confidence Interval
ε_L = Transducer Spacing 95% Confidence Interval
$\varepsilon_{\Delta t}$ = Feedwater Flow Average Transient Time 95% Confidence Interval
ε_ρ = Feedwater Flow Density 95% Confidence Interval

CORE THERMAL POWER UNCERTAINTY

$$\varepsilon_{CTP} = [\varepsilon_{Qfw}^2 + \varepsilon_{Qcr}^2 + \varepsilon_{Qcu}^2 + \varepsilon_{Qrad}^2 + \varepsilon_{Qp}^2]^{1/2} + \varepsilon_{Qp\ bias}$$

Where:

ε_{Qfw} = Power Transferred to Feedwater Flow 95% Confidence Interval
ε_{Qcr} = Power Transferred to Control Rod Drive Flow 95% Confidence Interval
ε_{Qcu} = Power Loss in Cleanup Demineralizer System 95% Confidence Interval
ε_{Qrad} = Radiative Power Loss 95% Confidence Interval
ε_{Qp} = Power Added by Recirculation Pumps 95% Confidence Interval
$\varepsilon_{Qp\ bias}$ = Power Added by Recirculation Pumps Bias Error

The calculations are consistent with the methodology described in Reference 1. The uncertainty calculations support an overall uncertainty in the reactor power measurement of $\leq$ 0.5%. The uncertainty is at a 95% probability level. Section 1.4 of Attachment 2 also discusses the uncertainty in the PNPS heat balance using the CROSSFLOW system. The heat balance calculation will be finalized after startup when operating data has been obtained.

CROSSFLOW 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 CROSSFLOW 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. The CROSSFLOW software will be controlled in accordance with the Entergy Software QA program for level B software.

4.2.7 Hydraulic Modeling

The CROSSFLOW System has been tested, using a Pilgrim specific piping configuration, at a test facility. The results demonstrate the accuracy conclusions regarding the system.

4.3 Safety Relief Valve (SRV) Modifications

The throat size of the SRVs is being increased to accommodate the power uprate and results in a 7.5% increase in relief capacity. Snubbers associated with the SRV discharge lines are being changed as required to accommodate the increased discharge loads.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

The proposed Thermal Power Optimization (TPO) power uprate 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 10 CFR 50 Appendix K recognizes that the uncertainty of the plant instrumentation was conservatively bounded by the 2% required to be assumed in the original Appendix K analyses. With this proposed power uprate, PNPS continues to meet the requirements of 10 CFR 50.46 and 10 CFR 50 Appendix K.

ENO has determined that the proposed changes do not require any exemptions or relief from any regulatory requirements, other than the proposed TS changes (see Attachment 3).

5.2 Modification Assessment

The proposed increase in electrical output of PNPS is primarily accomplished by providing a higher steam flow to the turbine generator. The approach is to increase core flow along the established rod lines. This allows the plant to maintain most of the existing core flow operational flexibility while assuring that low power related issues, such as stability and anticipated transient without scram (ATWS), do not change. There is no increase in the maximum core flow or operating pressure. The method for achieving the higher power is by improving the feedwater flow rate instrumentation. In addition, changes are being made to replace the HP turbine steam path, increase the SRV throat size, and make minor setpoint and controller adjustments.

The modification to the SRVs increases steam flow and the associated discharge loads. PNPS plans to use an alternate methodology for analysis of the affected safety-related piping. This method is known as Independent Support Motion (ISM) and was previously used at PNPS in conjunction with intergranular stress corrosion cracking (IGSCC) recirculation, residual heat removal (RHR) and reactor water clean up system piping replacement as discussed in UFSAR section 12.2.3.5.5 and provides a more accurate analytical approach. The method exhibits both gains and losses of conservatism. The methodology will be implemented with a set of conditions consistent with the prior usage. Performing the piping analysis using ISM will reduce the modification scope and corresponding worker dose in the drywell.

In summary the primary basis for this TPO uprate is a reduction in the uncertainty of the power determination through improved feedwater flow rate instrumentation. This reduced power level uncertainty, combined with improved system and component performance, provides PNPS the capability to increase the rated thermal power (RTP) with no increase in the hazards presented by the plant as currently approved by the NRC.

5.3 Discussion of Issues Being Evaluated

Plant performance and responses to hypothetical accidents and transients have been evaluated for the TPO uprate license amendment. This section summarizes the safety significant plant reactions to events analyzed for licensing the plant, and the potential effect on various margins of safety, and, thereby, concludes that no significant hazards consideration is involved.

5.3.1 Uprate Analysis Basis

PNPS is currently licensed for a 100% RTP level of 1998 MWt. The current safety analysis basis assumed, where required, that the reactor had been operating continuously at a power level at least 1.02 times the current licensed thermal power (CLTP). The analyses performed at 102% of CLTP remain applicable at the TPO RTP, because the 2% factor from Regulatory Guide (RG) 1.49 is effectively reduced by the improvement in the feedwater flow measurement. Some current analyses have been performed at 100% CLTP, either because the RG 1.49 power factor is accounted for in the methods or it does not apply (e.g., ATWS and station blackout (SBO) events). These analyses have been evaluated at the TPO RTP level and it has been demonstrated that sufficient margin exists to meet the design criteria.

5.3.2 Margins

The above TPO uprate analysis review ensures that the power dependent margins prescribed by the Code of Federal Regulations (CFR) are maintained by meeting the appropriate regulatory criteria. NRC approved or industry accepted computer codes and calculational techniques were used to demonstrate that the acceptance criteria are met. Similarly, design margins specified by application of the American Society of Mechanical Engineers (ASME) design rules are maintained, as are other margin ensuring criteria used to judge the acceptability of the plant. Environmental margins are maintained by not increasing any of the present limits for releases.

5.3.3 Fuel Thermal Limits

No change is required in the basic fuel design to achieve the TPO RTP level or to meet the plant licensing limits. No increase in allowable peak bundle power is requested for the TPO uprate and current fuel operating limits continue to be met. Adequate fuel thermal margin has also been confirmed for the TPO uprate condition and the core thermal monitoring threshold remains at 25% RTP after the TPO uprate.

5.3.4 Makeup Water Sources

There are numerous safety and nonsafety-related cooling water sources to pump water into the reactor vessel to deal with all types of events. The safety-related cooling water sources alone maintain core integrity by providing adequate cooling water. There are high and low pressure, high and low volume, safety and non-safety grade means of delivering water to the vessel. Many of these diverse water supply means are redundant in both equipment and systems.

The TPO uprate does not result in an increase or decrease in the available water sources, nor does it change the selection of those assumed to function in the safety analyses. NRC approved methods were used for analyzing the performance of the ECCS during LOCAs.

The TPO uprate results in a 1.5% increase in decay heat, which slightly increases the core cooling time to reach cold shutdown. This is not a safety concern, and the existing cooling capacity can bring the plant to cold shutdown within an acceptable time span.

5.3.5 Design Basis Accidents (DBA)

Licensing evaluations demonstrate the capability to cope with the range of hypothetical pipe break sizes in the largest recirculation, steam, and feedwater lines, a postulated break in one of the ECCS lines, and the most limiting small lines. This break range bounds the full spectrum of large and small diameter, high and low energy line breaks, and demonstrates the ability of plant systems to mitigate the accidents while accommodating a single active equipment failure in addition to the postulated LOCA. Several of the most significant licensing assessments are based on the LOCA and include:

5.3.5.1 Challenges to Fuel

The ECCS are described in Sections 6.3 and 6.4 of the Updated Final Safety Analysis Report (UFSAR). The current ECCS analysis has been performed at 102% of CLTP and remains applicable to the TPO uprate conditions. The TPO uprate will have no effect on the peak clad temperature (PCT) consequences of a LOCA. Therefore, the ECCS safety margin is not affected by the TPO uprate.

5.3.5.2 Challenges to the Containment

The current containment evaluations are bounding for TPO uprate because they were based on 102% of CLTP. Although the nominal operating conditions increase slightly because of the TPO uprate, the required initial conditions for containment analysis inputs remain the same as previously analyzed. The short-term pressure and temperature response, long-term suppression pool temperature response, and containment dynamic loads for the TPO conditions meet regulatory requirements. Therefore, the containment and its cooling systems are judged to be satisfactory for TPO uprate operation.

5.3.5.3 DBA Radiological Consequences

The radiological consequences of a DBA are basically proportional to the quantity of radioactivity released to the environment. This quantity is a function of the fission products released from the core as well as the transport mechanisms from the core to the release point. The radiological releases at the TPO RTP are generally expected to increase in proportion to the core inventory increase, which is in proportion to the power increase.

Radiological consequences due to postulated DBA events, as documented in the UFSAR, have previously been evaluated and analyzed to show that NRC regulations are met for 2% above the CLTP. Therefore, the radiological consequences associated with a postulated DBA from TPO uprate conditions are bounded by the previous analyses.

5.3.6 Anticipated Operational Occurrence Analyses

The PNPS reload analyses will be developed considering the TPO RTP level using GE's NRC approved reload methodology as listed in PNPS TS 5.6.5. A review of the limiting transients concluded that the existing set of reload transients remains applicable for the TPO condition.

5.3.7 Equipment Qualification

Plant equipment and instrumentation have been evaluated against criteria appropriate for the TPO uprate. Because the current main steam line break, DBA-LOCA, and containment analyses have been performed at 102% of CLTP, the existing equipment qualification envelopes inside containment continue to be applicable for the TPO uprate conditions.

5.3.8 Balance-of-Plant (BOP)

BOP systems and equipment used to perform both safety-related and normal operational functions have been reviewed for the TPO uprate in a manner comparable to that for safety-related Nuclear Steam Supply System (NSSS) systems and equipment. This includes, but is not necessarily limited to, the Main Steam, Feedwater, Turbine, Condenser, Condensate, Essential and Non-essential Service Water, Emergency Diesel Generator, BOP Piping, and Support Systems. Some BOP equipment and systems are justified for the TPO uprate by generic evaluations. Plant-specific evaluations have been performed to justify TPO operation for BOP systems and equipment that are not generically justified.

5.3.9 Environmental Consequences

The environmental effects of the TPO uprate will be controlled below the same limits as for the current power level. None of the present environmental release limits, such as ultimate heat sink temperature or plant vent radiological release limits, will be exceeded or increased as a result of the TPO uprate. If unusual environmental conditions develop, procedures will be instituted to comply with required environmental limits. The current environmental release limits are thereby maintained.

5.3.10 Technical Specifications Changes

The TS are established to ensure that plant and system performance parameters are maintained within the values used in the safety analyses. The actual plant response at TPO conditions is less severe than the conditions represented by the safety analysis. Similarly, the TS address equipment operability (availability) and put limits on equipment out-of-service times to assure availability to mitigate abnormal plant events assumed in the safety analyses. The results of the safety analyses, considering TPO uprate conditions, are acceptable within regulatory limits. Therefore, there is no undue risk to public health and safety.

The TS affected by the TPO uprate are identified in Section 2. Proposed marked-up pages are shown in Attachment 3.

Action Statement D in TS Table 3.1.1 is being modified from "Reduce power to less than 45% of design." to "Reduce power to less than 32.5% of design" to be consistent with the current Core Operating Limits Report (COLR). The corresponding TS Bases 3.1 (page B3/4.1-2) for turbine stop valve (TSV) Closure and turbine control valve (TCV) Fast Closure trip functions is revised providing clarification concerning Action Statement D, requiring the operator to reduce the thermal power level less than 32.5% of design value when instrumentation is inoperable.

The above proposed revisions reflect the reduction in the thermal power level to 32.5% (33% adjusted by 1.015 for TPO) that is already included in the COLR.

5.4 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, ENO has provided information fully describing the changes desired. This amendment has been evaluated according to the standards set forth in 10 CFR 50.92 as discussed below.

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

Response: No.

The probability (frequency of occurrence) of design basis accidents DBAs is not affected by the increased power level, because the plant continues to comply with the regulatory and design basis criteria established for plant equipment (e.g., ASME code, IEEE standards, NEMA standards, regulatory guide criteria). Instrument setpoints (i.e., equipment settings that initiate automatic plant trips) and equipment operating margins are established such that there is no expected increase in transient event frequency.

Radiological consequences due to postulated design basis accident events, have been evaluated and analyzed to show that NRC regulations are met for 2% above the current licensed thermal power. Therefore, the radiological consequences associated with a postulated design basis accident from thermal power optimization uprate conditions are bounded by these analyses.

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

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

Response: No.

Equipment that could be affected by the power uprate has been evaluated. No new operating mode, safety-related equipment lineup, accident scenario or equipment failure mode was identified. The accident considerations defined in the Updated Final Safety Analysis Report have been evaluated, and no new or different kind of accident has been identified. The power uprate implementation uses established technology, NRC approved safety analysis methodology, and alternative methodology for analysis of safety-related piping using independent support motion methods. The methodology is applied in accordance with existing regulatory and industry criteria.

The proposed revisions to technical specification Table 3.1.1 only change the applicability of turbine stop valve closure and turbine control valve fast closure trip functions and operator action to reduce the thermal power to 32.5% of rated thermal power to comply with the core operating limits report thermal limits. The reduction in the core thermal power has been evaluated and found not to adversely impact other equipment or plant operation under normal, abnormal or accident conditions.

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

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

Response: No.

The calculated loads on all affected structures, systems and components have been shown to remain within design criteria for all design basis event categories. No NRC acceptance criterion is exceeded. Design margins, operational margins, and the margins of safety currently designed into the plant are not exceeded by the power uprate. The plant configuration and response to transients and hypothetical accidents do not result in exceeding the presently approved NRC acceptance limits.

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

Based on the above analysis, ENO concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92, and accordingly, a finding of “no significant hazards consideration” is justified.

5.5 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 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(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
Hope Creek	131	July 30, 2001	ML011910345

In addition, similar requests for other Entergy facilities, Waterford 3, Grand Gulf and River Bend, are currently under NRC review.

7.0 REFERENCES

1. ABB-CE Topical Report CENPD-397-P-A, Rev. 01, dated May 2000
2. NRC Safety Evaluation Report for Reference 1, dated March 20, 2000