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10 CFR 50.90

RS-04-133

November 4, 2004

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

Dresden Nuclear Power Station, Units 2 and 3
Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

Quad Cities Nuclear Power Station, Units 1 and 2
Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Request for Changes Related to Technical Specifications Section 3.4.9, "Reactor Coolant System Pressure and Temperature (P/T) Limits"

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) requests an amendment to Technical Specifications (TS), Section 3.4.9, "Reactor Coolant System Pressure and Temperature (P/T) Limits," for Dresden Nuclear Power Station (DNPS), Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2. This amendment request revises the P/T limits curves for 54 effective full power years (EFPY) to support 20-year license extensions for both DNPS and QCNPS to 60 years (i.e., 54 EFPY), and resolves a non-conservative condition for TS Section 3.4.9, Figure 3.4.9-2, "Non-Nuclear Heatup/Cooldown Curve," for QCNPS. In accordance with NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety," administrative controls have been put in place at QCNPS until the license amendment request is approved.

Appendices A and B provide information supporting the proposed changes for DNPS and QCNPS, respectively. The attachments in these appendices are arranged as follows.

1. Attachment 1 provides a description and safety analysis of the proposed change.

2. Attachment 2 includes the applicable TS and TS Bases pages with proposed changes indicated. The TS Bases pages are provided for information only.

3. Attachment 3 contains the revised TS pages with the proposed change incorporated.

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4. Attachment 4 contains the General Electric (GE) proprietary reports supporting the proposed change, and an affidavit supporting withholding from public disclosure. Attachment 4 contains GE proprietary information and is furnished to EGC in confidence, and is exempt from disclosure in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," paragraph (a)(4).

5. Attachment 5 provides a non-proprietary version of the GE reports supporting the proposed changes.

The proposed changes were reviewed by DNPS and QCNPS Plant Operations Review Committees and approved by the Nuclear Safety Review Boards in accordance with the Quality Assurance Program.

EGC is notifying the State of Illinois of this application for amendment by transmitting a copy of this letter and its attachments to the designated State Official.

We request approval of the proposed changes by November 7, 2005, with an implementation period of 90 days.

Should you have any questions concerning this letter, please contact Mr. Thomas G. Roddey at (630) 657-2811.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 4th day of November 2004.

Respectfully,

Patrick R. Simpson

Patrick R. Simpson
Manager – Licensing

Attachments: Appendix A: Pressure-Temperature Curves, Amendment Request to Support Operation to 54 Effective Full Power Years – Dresden Nuclear Power Station

Appendix B: Pressure-Temperature Curves, Amendment Request to Support Operation to 54 Effective Full Power Years – Quad Cities Nuclear Power Station

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Dresden Nuclear Power Station
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station
Illinois Emergency Management Agency – Division of Nuclear Safety

APPENDIX A
Pressure-Temperature Curves,
Amendment Request to Support Operation to 54 Effective Full Power Years
Dresden Nuclear Power Station

Attachment 1

Description of Proposed Changes, Technical Analysis, and Regulatory Analysis

Subject: Request for Changes Related to Technical Specifications Section 3.4.9, "Reactor Coolant System Pressure and Temperature (P/T) Limits"

Attachment 1

Description of Proposed Changes, Technical Analysis, and Regulatory Analysis

1. DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) requests a change to Facility Operating License Nos. DPR-19 and DPR-25, and the Technical Specifications (TS) for Dresden Nuclear Power Station (DNPS), Units 2 and 3. This amendment request revises TS Section 3.4.9, "Reactor Coolant System Pressure and Temperature (P/T) Limits," to revise the P/T limits curves for 54 effective full power years (EFPY).

EGC requests approval of these proposed changes no later than November 7, 2005.

2. PROPOSED CHANGE

The proposed change is as follows.

- Replace the current TS Figures 3.4.9-1 through 3.4.9-3 with revised TS Figures 3.4.9-1 through 3.4.9-3. The revised P/T curves are applicable to 54 effective full power years (EFPY) as determined for a 40-year license with a 20-year renewed period.

EGC has reviewed the proposed changes and verified that there is no impact on previous submittals awaiting NRC approval.

3. BACKGROUND

In Reference 1, General Electric Company (GE) submitted Licensing Topical Report (LTR) NEDC-32983P, "General Electric Methodology for Reactor Vessel Fast Neutron Flux Evaluations," dated September 2000, to the NRC. The LTR, which is in compliance with Regulatory Guide (RG) 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," dated March 2001, described a proposed methodology for calculating reactor pressure vessel (RPV) fast neutron fluence. The NRC approved this methodology in Reference 2. This approved methodology was used to develop the P/T limits curves for the proposed changes in this request. Attachments 4 and 5 contain reports that describe the GE methodology used in calculating the RPV fluence and provide results used for determining P/T curves for DNPS, Units 2 and 3.

In Reference 3, the NRC approved Amendment Nos. 191 and 185 to the Facility Operating Licenses for DNPS, Units 2 and 3, respectively, permitting extended power uprate (EPU) operations. The amendments allowed an increase in the maximum authorized operating power level from 2527 megawatts thermal (MWt) to 2957 MWt, an increase of approximately 17%. The NRC approved the EPU license amendment request on December 21, 2001. DNPS Unit 2 began EPU operations on December 26, 2001, and Unit 3 began EPU operations on November 4, 2002. Operation at EPU power levels affects the RPV fluence, and the determination of the P/T limits for the proposed change addresses this issue.

In Reference 4, EGC requested a renewal of the operating licenses for DNPS, Units 2 and 3, to extend operation of these facilities to 60 years. The proposed changes in this request are submitted to support the continued operation of these facilities to 54 EFPY, corresponding to a 60-year plant life. In Reference 5, Southern Nuclear Operating Company, Inc., submitted a similar request for Edwin I. Hatch Nuclear Plant, Units 1 and 2. The NRC approved this request in Reference 6.

4. TECHNICAL ANALYSIS

The P/T limits curves are prescribed during normal operation to avoid encountering pressure, temperature, and temperature rate-of-change conditions that might cause undetected flaws to propagate and cause nonductile failure of the reactor coolant pressure boundary, a condition that is unanalyzed. The operating limits for pressure and temperature are required for three categories of operation: (a) hydrostatic pressure tests and leak tests, (b) non-nuclear heatup/cooldown and low-level physics tests, and (c) core critical operation.

Methodology

Attachments 4 and 5 describe the methodology used by GE to develop P/T curves. This methodology is similar to that used to generate the curves submitted to the NRC in Reference 7, in which EGC requested a change to TS Figures 3.4.9-1, 3.4.9-2, and 3.4.9-3. During review of Reference 7, the NRC requested additional information regarding a comparison of stresses listed in Reference 8, including those stresses associated with two transient conditions considered in the analysis. As a result of the NRC's questions, the stress reports were reviewed further and the K_I values for the limiting normal and upset transients were determined. An evaluation was performed using plant specific inputs to scale the stresses for the limiting normal and upset thermal transients, which determined that the bottom head curve was conservative. In addition, the P/T curves for DNPS were revised and resubmitted during the review. Reference 9 contains additional details associated with the review of the GE methodology and EGC's responses to NRC questions associated with this review. The NRC approved the Reference 7 request in Reference 10.

The P/T curve methodology includes the following.

1) Incorporation of ASME Code Cases N-588, "Alternative to Reference Flaw Orientation of Appendix G for Circumferential Welds in Reactor Vessels, Section XI, Division 1," and N-640, "Alternative Fracture Toughness for Development of P-T Limit Curves for ASME Section XI, Division 1." Code Case N-588 is applied for DNPS Unit 3 only.

2) Use of the M_m calculation in the ASME Code, paragraph G-2214.1, for a postulated defect normal to the direction of maximum stress.

Attachment 1

Description of Proposed Changes, Technical Analysis, and Regulatory Analysis

ASME Code Case N-588 allows the use of an alternative procedure for calculating the applied stress intensity factors for axial and circumferential welds. ASME Code Case N-640 allows the use of K_{IC} in Figure A-4200-1of ASME Code, Section XI, Appendix A, in lieu of K_{Ia} of Figure G-2210-1 of Appendix G, to determine T-RT_{NDT}. Use of NRC-approved ASME Code Cases (i.e., N-588, and N-640) in conjunction with earlier versions of the ASME Code endorsed in 10 CFR 50.55a, "Codes and standards," may also be used for the development of P/T limit curves without the need for an exemption. These alternatives to the Appendix G methodology have been proposed and accepted as appropriate alternatives and are documented in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." Use of the M_m calculation is discussed in the BWR/6 generic evaluation in ASME Code, Section XI, Appendix G.

For DNPS Unit 2, the concentrations of copper and nickel in the material chemistry of an electroslag weld (i.e., vertical weld in the lower-intermediate shell course) results in the limiting temperature shift after 54 EFPY. The shifts that occur on the DNPS Unit 2 girth welds (i.e., circumferential welds) are considerably smaller. As a result, there is no benefit in applying ASME Code Case N-588 to the less limiting circumferential welds. These results are summarized for DNPS Unit 2 in GE reports GE-NE-0000-0002-9629-01R1 and -01R1a, Table 4-4, "Dresden Unit 2 Beltline ART Values (54 EFPY)." These reports are provided in Attachments 4 and 5.

In the case of DNPS Unit 3, GE reports GENE-0000-0002-9600-01R2 and -01R2a, Table 4-4, "Dresden Unit 3 Beltline ART Values (54 EFPY)," identify an electroslag weld and a girth weld (i.e., lower to lower-intermediate shell courses, heat number 299L44/8650) having similar poor chemistry properties resulting in equal temperature shifts of 104°F at 54 EFPY.

For Dresden Unit 3, the beltline axial weld is the limiting material at 32 EFPY. At 54 EFPY the beltline girth weld becomes limiting by <1°F. However, because the calculated value of stress intensity factor K_{Im} is reduced for a girth weld due to implementation of Code Case N-588 (circumferentially oriented defect for circumferential welds), the axial weld bounds the P-T curve beltline region requirements. ASME Code Case N-588 is applied on DNPS Unit 3 as it allows the use of an alternative procedure for calculating the applied stress intensity factors of ASME Code, Section XI, Appendix G, for axial and circumferential welds.

The proposed P/T curves, and the methodology used to develop them, comply with ASME Code, Section III, Appendix G, and ASTM E 185, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels," requirements for monitoring fracture toughness, minimum temperature, and performing material surveillances in accordance with 10 CFR 50, Appendix G, "Fracture Toughness Requirements," and 10 CFR 50, Appendix H, "Reactor Vessel Material Surveillance Program Requirements."

Attachment 1

Description of Proposed Changes, Technical Analysis, and Regulatory Analysis

Analysis Assumptions

The analysis used the following assumptions.

(1) For end-of-license (54 EFPY) fluence, a mixed capacity factor was used to determine the EFPY for a 60-year plant life. An 80% capacity factor is assumed up to 19.4 EFPY for Unit 2 (19.8 EFPY for Unit 3). To consider recent improvements in plant operation, a 97.5% capacity factor is used beginning at 19.4 EFPY for Unit 2 (19.8 EFPY for Unit 3). Hence, 54 EFPY is assumed to represent 60 years of operation.

(2) The hydrostatic test will be conducted at or below 1105.5 psig.

(3) The shutdown margin, provided in the TS for DNPS, Units 2 and 3, is calculated for a water temperature of 68°F.

(4) Considerations for EPU were included in the analysis. The P/T limits were calculated using a pre-EPU and a post-EPU RPV neutron fluence, both calculated in accordance with RG 1.190. The pre-EPU fluence corresponds to 19.4 EFPY for Unit 2 (19.8 EFPY for Unit 3) and the post-EPU fluence corresponds to 34.6 EFPY (34.2 EFPY for Unit 3) for 54 EFPY calculations.

Protection Against Brittle Fracture

The P/T curves are composites created by superimposing limits derived from stress analyses of those portions of the reactor vessel and head that are the most restrictive, thereby representing the bounding results for the combined Unit 2 and Unit 3 curves. The curves present steam dome pressure versus minimum vessel temperature, including appropriate non-beltline limits and irradiation embrittlement effects in the beltline. These curves have been combined to make it easier for Operations personnel to choose the correct curves during plant operations.

The table below identifies the curves in TS Section 3.4.9 in Attachment 3, and the corresponding figures in Attachments 4 and 5 (i.e., GE reports) for DNPS, Units 2 and 3. The composite curves in the GE reports are identical for both DNPS units.

TS Figure	TS Page	Title	GE Report Figure	GE Report Page
3.4.9-1	3.4.9-6	"Non-Nuclear Inservice Leak and Hydrostatic Testing Curve"	G-13, Curve A	G-16
3.4.9-2	3.4.9-7	"Non-Nuclear Heatup/Cooldown Curve"	G-14, Curve B	G-17
3.4.9-3	3.4.9-8	"Critical Operations Curve"	G-10, Curve C	G-13

Each P/T curve defines an acceptable region for normal operation and provides guidance for heatup or cooldown maneuvering. Adherence to the limits specified by the P/T curves assures that the RPV and piping of the reactor coolant pressure boundary have sufficient margin to brittle failure during normal operation, anticipated operational occurrences, and system hydrostatic tests. Operation within the limits of the P/T curves protects the RPV and the reactor boundary from brittle failure.

The curves presented in the proposed TS figures are composite curves for DNPS, Units 2 and 3. These curves were developed by choosing the most limiting pressure from the analysis results of the two units for each metal temperature.

5. REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

According to 10 CFR 50.92, "Issuance of amendment," paragraph (c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

In support of this determination, an evaluation of each of the three criteria set forth in 10 CFR 50.92 is provided below regarding the proposed license amendment.

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

The proposed changes request that, for DNPS, Units 2 and 3, the pressure and temperature (P/T) limit curves in TS 3.4.9, "RCS Pressure and Temperature (P/T) Limits," be revised.

The P/T limits are prescribed during all operational conditions to avoid encountering pressure, temperature, and temperature rate-of-change conditions that might cause undetected flaws to propagate, resulting in non-ductile failure of the reactor coolant pressure boundary, which is an unanalyzed condition. The methodology used to determine the P/T limits has been approved by the NRC and thus is an acceptable method for determining these limits. Therefore, the

proposed changes do not affect the probability of an accident previously evaluated.

There is no specific accident that postulates a non-ductile failure of the reactor coolant pressure boundary. The loss of coolant accident analyzed for the plant assumes a 4.281 square feet complete break of the Recirculation pump suction line. The revision to the P/T limits does not change this assumption. Thus, the radiological consequences of any accident previously evaluated are not increased.

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

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

The proposed changes do not change the response of plant equipment to transient conditions. The proposed changes do not introduce any new equipment, modes of system operation, or failure mechanisms.

Non-ductile failure of the reactor coolant pressure boundary is not an analyzed accident, as previously discussed in Reference 11. The proposed changes to the P/T limits were developed using an NRC-approved methodology, and thus the revised limits will continue to provide protection against non-ductile failure of the reactor coolant pressure boundary.

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

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

The margin of safety related to the proposed changes is the margin between the proposed P/T limits and the pressures and temperatures that would produce non-ductile failure of the reactor coolant pressure boundary. NRC requirements to protect the integrity of the reactor coolant pressure boundary in nuclear power plants is established in 10 CFR 50, Appendix G, "Fracture Toughness Requirements," which requires that the P/T limits for an operating plant be at least as conservative as those that would be generated if the methods of American Society of Mechanical Engineers (ASME) Section XI, Appendix G, were applied. The use of an NRC-approved methodology, together with conservatively chosen plant-specific input parameters, provides an acceptable margin of safety. Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Conclusion

Based upon the above responses, EGC 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.

5.2 Applicable Regulatory Requirements/Criteria

The P/T limits are not derived from Design Basis Accident (DBA) analyses. They are prescribed during normal operation to avoid encountering pressure, temperature, and temperature rate-of-change conditions that might cause undetected flaws to propagate and cause nonductile failure of the reactor coolant pressure boundary, a condition that is unanalyzed. Therefore, the P/T curves must be included in the TS for DNPS, Units 2 and 3, in accordance with Criterion 2 of 10 CFR 50.36, "Limiting conditions for operation," paragraph (c)(2)(ii).

6. ENVIRONMENTAL CONSIDERATION

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) requests a change to Facility Operating License Nos. DPR-19 and DPR-25, and the Technical Specifications (TS) for Dresden Nuclear Power Station (DNPS), Units 2 and 3. The proposed change is to TS Section 3.4.9, "Reactor Coolant System Pressure and Temperature (P/T) Limits," to revise the P/T limits curves.

EGC evaluated the proposed change against the criteria in 10 CFR 51.21, "Criteria for and identification of licensing and regulatory actions requiring environmental assessments." EGC determined that the proposed change meets the criteria for a categorical exclusion as set forth in 10 CFR 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," paragraph (c)(9). EGC determined that no irreversible consequences exist, in accordance with 10 CFR 50.92, "Issuance of amendment," paragraph (b). This change is proposed as an amendment to a license issued pursuant to 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, "Standards for Protection Against Radiation," or that changes an inspection or a surveillance requirement, and the amendment meets the following criteria:

(i) The amendment involves no significant hazards consideration.

As demonstrated in Section 5.1, this proposed change does not involve any significant hazards consideration.

(ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released.

The proposed change revises the P/T limits curves of TS Section 3.4.9. It does not allow for an increase in the unit power level and does not increase the production, nor alter the flow path or method of disposal, of radioactive waste or byproducts. Therefore, the proposed change does not affect the actual unit effluents.

(ii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed change will not result in changes in the configuration of the facility. There will be no change in the level of controls or methodology used for processing of radioactive effluents or handling of solid radioactive waste, nor will the proposal result in any change to the normal radiation levels within the plant. Therefore, there will be no increase in individual or cumulative occupational radiation exposure resulting from this change.

7. REFERENCES

1. Letter from J. F. Klapproth (General Electric Company) to U. S. NRC, "Submittal of GE Proprietary Document NEDC-32983P, 'General Electric Methodology for Reactor Vessel Fast Neutron Flux Evaluations,'" dated September 1, 2000

2. Letter from U. S. NRC to J. F. Klapproth (General Electric Company), "Safety Evaluation for NEDC-32983P, 'General Electric Methodology for Reactor Pressure Vessel Fast Neutron Flux Evaluation,'" dated September 14, 2001

3. Letter from U. S. NRC to O. D. Kingsley (Exelon Generation Company, LLC), "Dresden Nuclear Power Station, Unit Nos. 2 and 3 - Issuance of Amendments for Extended Power Uprate (TAC Nos.MB0844 and MB0845)," dated December 21, 2001

4. Letter from J. A. Benjamin (Exelon Generation Company, LLC) to U. S. NRC, "Application for Renewed Operating Licenses," dated January 3, 2003

5. Letter from H. L. Sumner, Jr., (Southern Nuclear Operating Company, Inc.) to U. S. NRC, "Edwin I. Hatch Nuclear Plant, Request to Revise Technical Specifications: Pressure and Temperature Limits," dated June 1, 2000

6. Letter from U. S. NRC to H. L. Sumner, Jr., (Southern Nuclear Operating Company, Inc.), "Edwin I. Hatch Nuclear Plant, Units 1 and 2, Issuance of Amendments," dated August 29, 2000

7. Letter from P. R. Simpson, (Exelon Generation Company, LLC) to U. S. NRC, "Request for Changes Related to Technical Specifications Section 3.4.9, 'Reactor Coolant System Pressure and Temperature Limits,'" dated February 27, 2003

8. General Electric Reports, GE-NE-0000-0002-9629 and GE-NE-0000-0002-9600, "Pressure-Temperature Curves for Exelon Dresden Unit 2," and "Pressure-Temperature Curves for Exelon Dresden Unit 3," respectively, dated February 2003

9. Letter from P. R. Simpson, (Exelon Generation Company, LLC) to U. S. NRC, "Additional Information Regarding Request for License Amendment for Pressure - Temperature Limits," dated September 11, 2003

10. Letter from U. S. NRC to J. L. Skolds (Exelon Generation Company, LLC), "Dresden Nuclear Power Station, Units 2 and 3 - Issuance of Amendments Regarding Pressure and Temperature Limits," dated November 26, 2003

11. Letter from P. R. Simpson, (Exelon Generation Company, LLC) to U. S. NRC, "Additional Information Regarding Request for License Amendment for Pressure - Temperature Limits," dated July 17, 2003

Attachment 2

Markup of Technical Specification Pages for Proposed Changes

TS PAGES

3.4.9-6
3.4.9-7
3.4.9-8

TS BASES PAGES

B 3.4.9-1
B 3.4.9-9

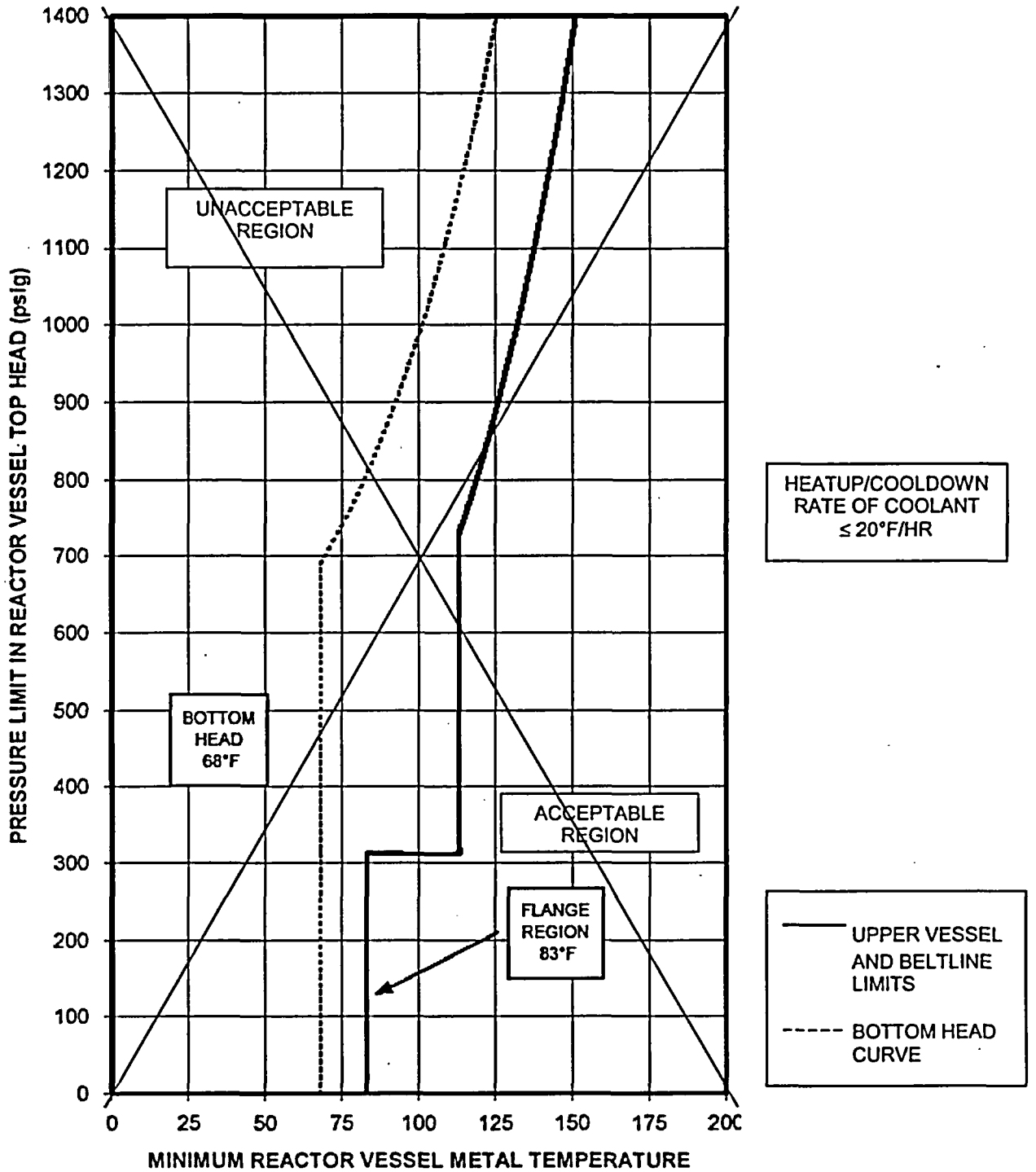

Figure 3.4.9-1 (Page 1 of 1)
Non-Nuclear Inservice Leak and Hydrostatic Testing Curve
(Valid to 32 EFPY)

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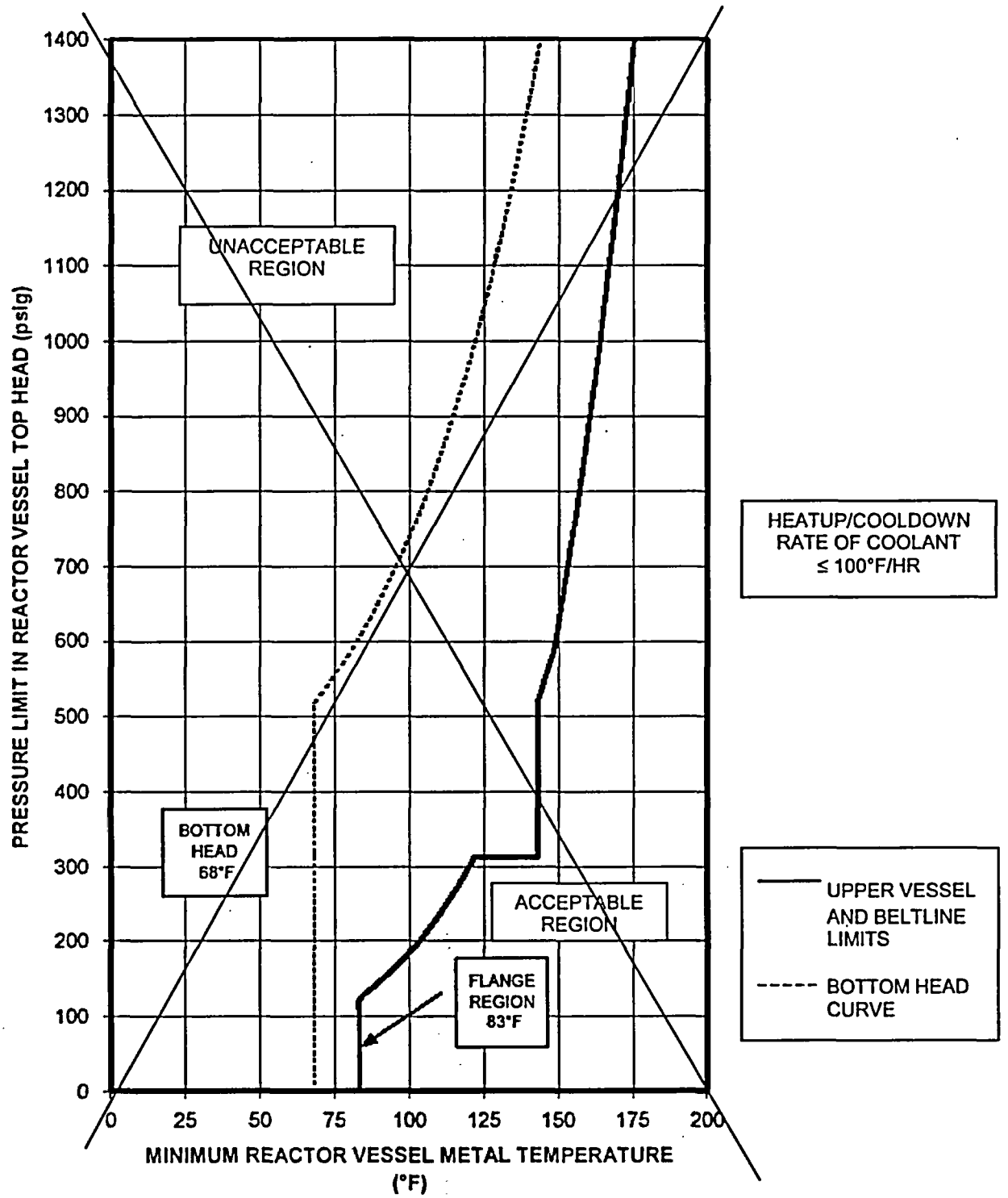

Figure 3.4.9-2 (Page 1 of 1)
Non-Nuclear Heatup/Cooldown Curve
(Valid to 32 EFPY)

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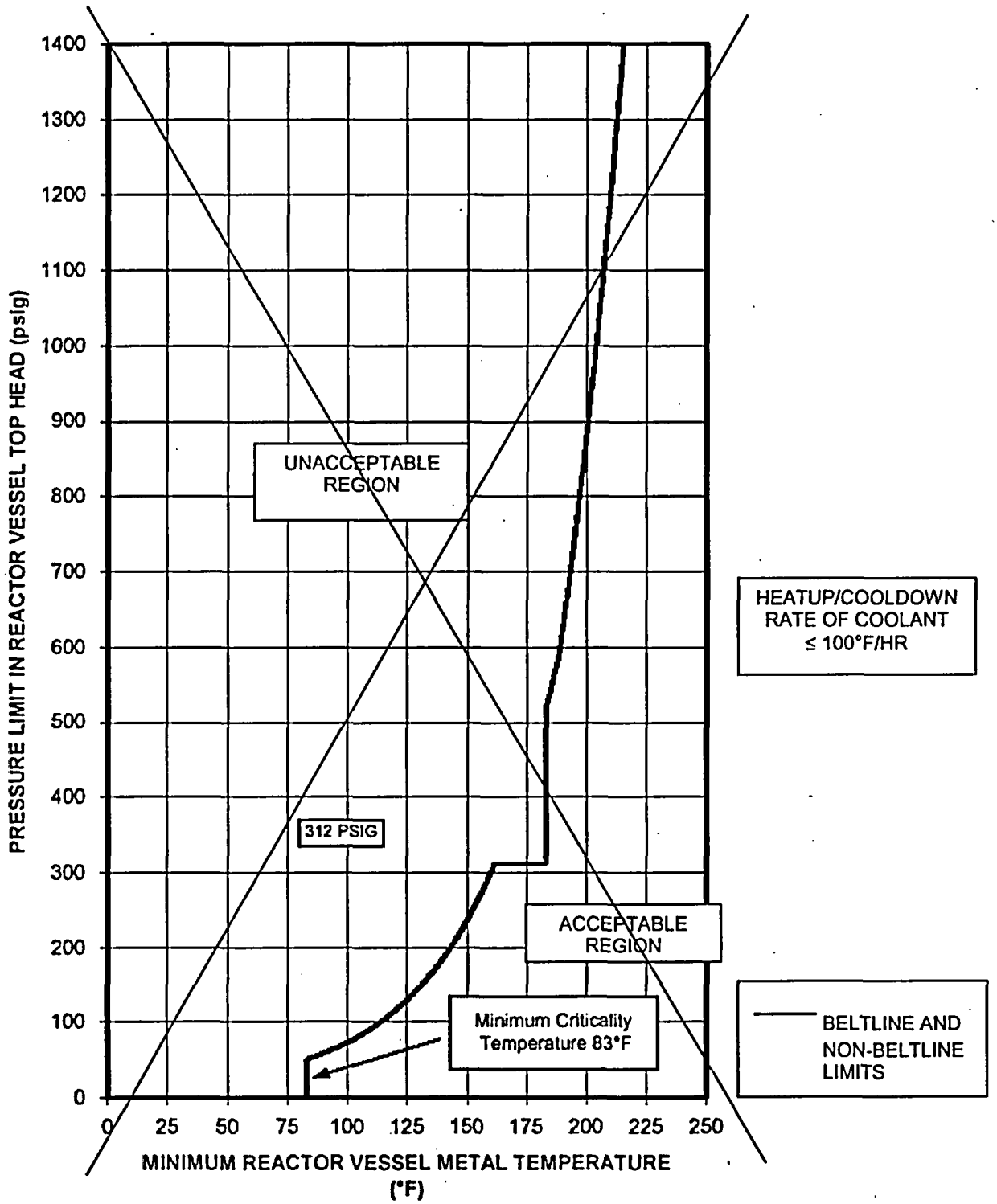

Figure 3.4.9-3 (Page 1 of 1)
Critical Operations Curve
(Valid to ~~32~~ 54 EFPY)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.9 RCS Pressure and Temperature (P/T) Limits

BASES

BACKGROUND

All components of the RCS are designed to withstand effects of cyclic loads due to system pressure and temperature changes. These loads are introduced by startup (heatup) and shutdown (cooldown) operations, power transients, and reactor trips. This LCO limits the pressure and temperature changes during RCS heatup and cooldown, within the design assumptions and the stress limits for cyclic operation.

The Specification contains P/T limit curves for heatup, cooldown, and inservice leak and hydrostatic testing, and criticality, and also limits the maximum rate of change of reactor coolant temperature. The P/T limit curves are applicable for 32 effective full power years.

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Each P/T limit curve defines an acceptable region for normal operation. The usual use of the curves is operational guidance during heatup or cooldown maneuvering, when pressure and temperature indications are monitored and compared to the applicable curve to determine that operation is within the allowable region.

The LCO establishes operating limits that provide a margin to brittle failure of the reactor vessel and piping of the reactor coolant pressure boundary (RCPB). The vessel is the component most subject to brittle failure. Therefore, the LCO limits apply mainly to the vessel.

10 CFR 50, Appendix G (Ref. 1), requires the establishment of P/T limits for material fracture toughness requirements of the RCPB materials. Reference 1 requires an adequate margin to brittle failure during normal operation, anticipated operational occurrences, and system hydrostatic tests. It mandates the use of the ASME Code, Section III, Appendix G (Ref. 2).

The actual shift in the RT_{NDT} of the vessel material will be established periodically by removing and evaluating the irradiated reactor vessel material specimens, in accordance with ASTM E 185 (Ref. 3) and Appendix H of 10 CFR 50 (Ref. 4). The operating P/T limit curves will be adjusted,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.9.5, SR 3.4.9.6, and SR 3.4.9.7 (continued)

The 30 minute Frequency reflects the urgency of maintaining the temperatures within limits, and also limits the time that the temperature limits could be exceeded. The 12 hour Frequency is reasonable based on the rate of temperature change possible at these temperatures.

SR 3.4.9.5 is modified by a Note that requires the Surveillance to be performed only when tensioning the reactor vessel head bolting studs. SR 3.4.9.6 is modified by a Note that requires the Surveillance to be initiated 30 minutes after RCS temperature ≤ 93°F in MODE 4. SR 3.4.9.7 is modified by a Note that requires the Surveillance to be initiated 12 hours after RCS temperature ≤ 113°F in MODE 4. The Notes contained in these SRs are necessary to specify when the reactor vessel flange and head flange temperatures are required to be verified to be within the specified limits.

REFERENCES

1. 10 CFR 50, Appendix G.

2. ASME, Boiler and Pressure Vessel Code, Section III, Appendix G.

3. ASTM E 185-82, July 1982.

4. 10 CFR 50, Appendix H.

5. Regulatory Guide 1.99, Revision 2, May 1988.

6. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix E.

7. ~~Letter from M. Banerjee (NRC) to J. L. Skolds (Exelon Generation Company, LLC), "Dresden Nuclear Power Station, Units 2 and 3 -- Issuance of Amendments Regarding Pressure and Temperature Limits (TAC Nos. MB7850 and MB7851)," dated November 26, 2003.~~

[Letter from (NRC) addressing the current amendment request for revising the P/T Limits Curves]

8. UFSAR, Section 15.4.4.

Attachment 3

Retyped Technical Specification Pages for Proposed Changes

TS PAGE

3.4.9-6
3.4.9-7
3.4.9-8

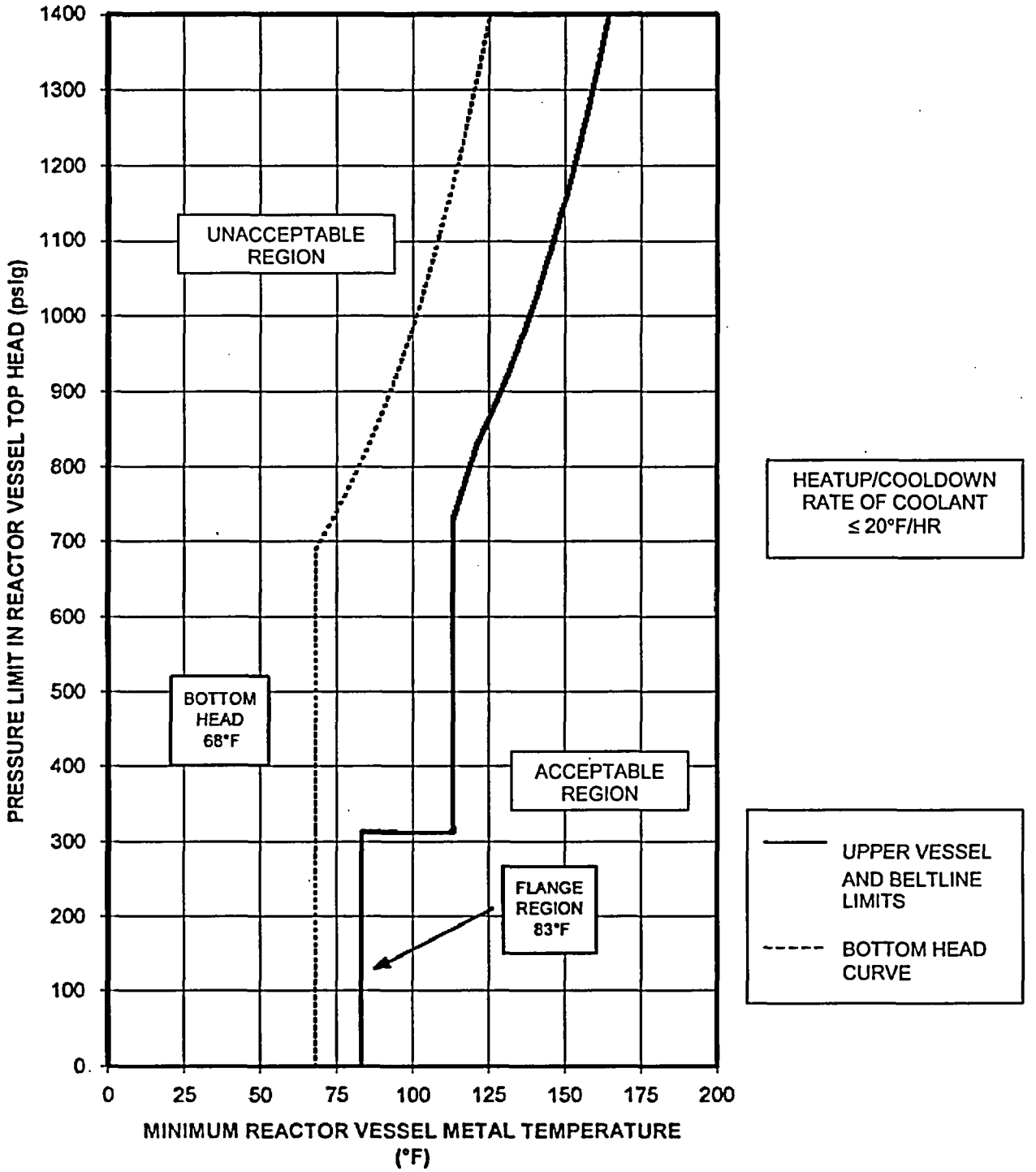

Figure 3.4.9-1 (Page 1 of 1)
Non-Nuclear Inservice Leak and Hydrostatic Testing Curve
(Valid to 54 EFPY)

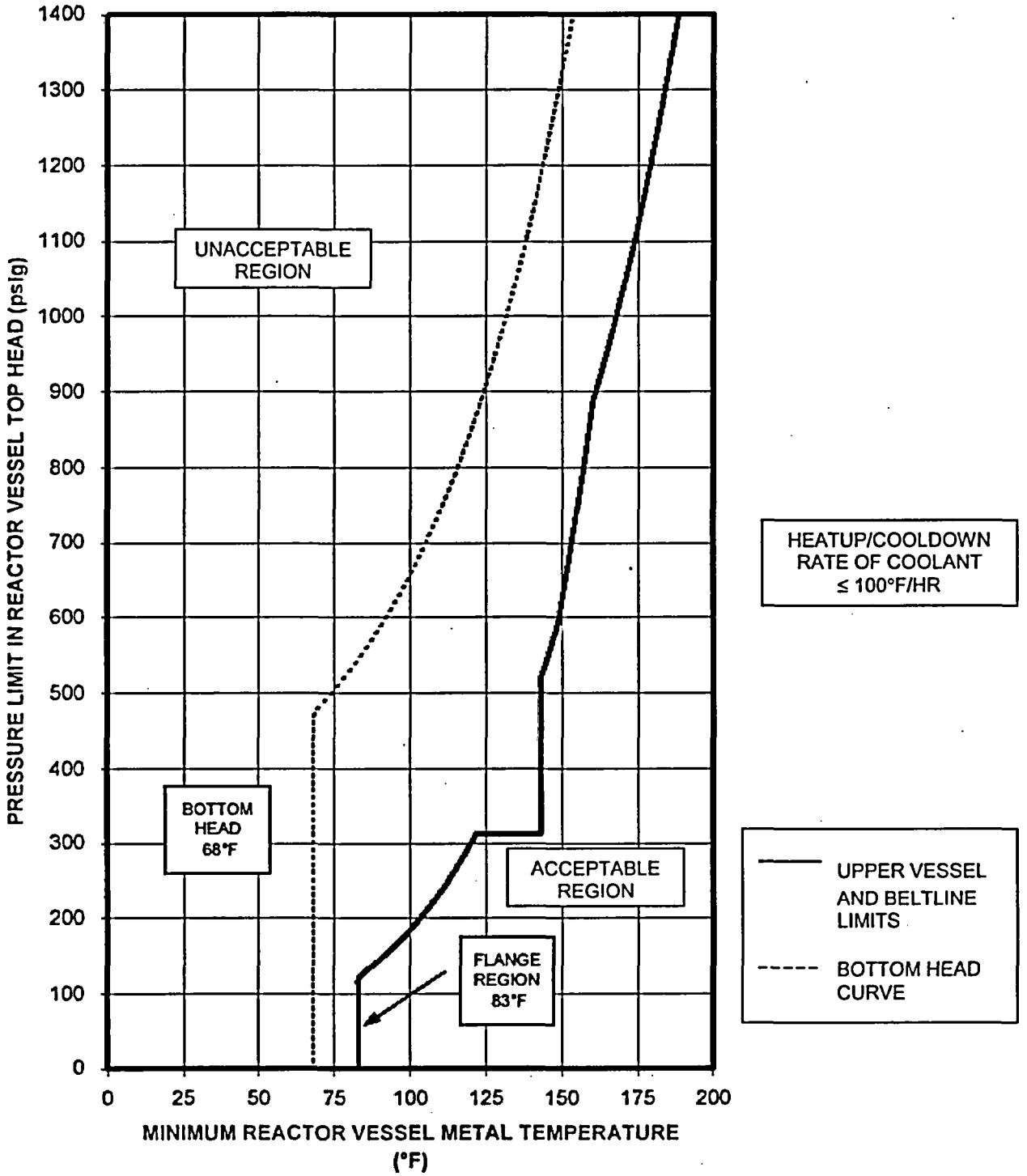

Figure 3.4.9-2 (Page 1 of 1)
Non-Nuclear Heatup/Cooldown Curve
(Valid to 54 EFPY)

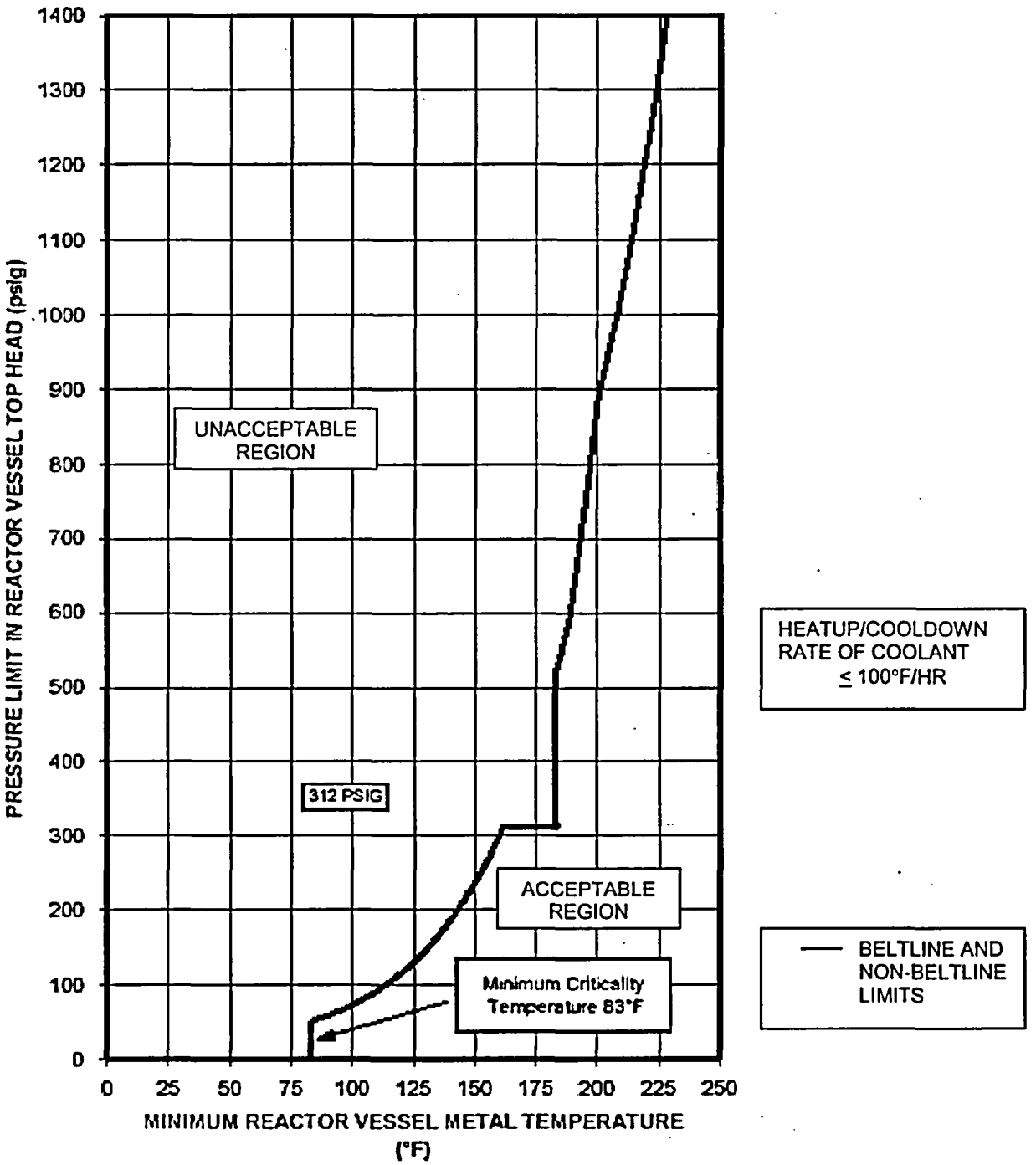

Figure 3.4.9-3 (Page 1 of 1)
Critical Operations Curve
(Valid to 54 EFPY)

Attachment 4

GE PROPRIETARY REPORT FOR DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3, GE-NE-0000-0002-9629-01R1 and GE-NE-0000-0002-9600-01R2

General Electric Company

AFFIDAVIT

I, George B. Stramback, state as follows:

(1) I am Manager, Regulatory Services, General Electric Company ("GE") and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.

(2) The information sought to be withheld is contained in the GE proprietary GE-NE-0000-0002-9629-01R1, *Pressure-Temperature Curves for Exelon Dresden Unit 2,* Revision 1, Class III (GE Proprietary Information), dated May 2004. The proprietary information is delineated by a double underline inside double square brackets. In each case, the superscript notation[3] refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.

(3) In making this application for withholding of proprietary information of which it is the owner, GE relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), and 2.390(a)(4) for "trade secrets" (Exemption 4). The material for which exemption from disclosure is here sought also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).

(4) Some examples of categories of information which fit into the definition of proprietary information are:

a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by General Electric's competitors without license from General Electric constitutes a competitive economic advantage over other companies;

b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;

c. Information which reveals aspects of past, present, or future General Electric customer-funded development plans and programs, resulting in potential products to General Electric;

d. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a., and (4)b, above.

(5) To address 10 CFR 2.390 (b) (4), the information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GE, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GE, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within GE is limited on a "need to know" basis.

(7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GE are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

(8) The information identified in paragraph (2), above, is classified as proprietary because it contains detailed methods and processes, which GE has developed and applied to pressure-temperature curves for the BWR over a number of years. The development of the BWR pressure-temperature curves was achieved at a significant cost, on the order of ¾ million dollars, to GE.

The development of the evaluation process along with the interpretation and application of the analytical results is derived from the extensive experience database that constitutes a major GE asset.

(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GE's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GE's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes

beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GE.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GE's competitive advantage will be lost if its competitors are able to use the results of the GE experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GE would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GE of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on this 26th day of May 2004.

George B. Stramback

George B. Stramback
General Electric Company

General Electric Company

AFFIDAVIT

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(3) In making this application for withholding of proprietary information of which it is the owner, GE relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), and 2.390(a)(4) for "trade secrets" (Exemption 4). The material for which exemption from disclosure is here sought also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).

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c. Information which reveals aspects of past, present, or future General Electric customer-funded development plans and programs, resulting in potential products to General Electric;

d. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a., and (4)b, above.

(5) To address 10 CFR 2.390 (b) (4), the information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GE, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GE, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

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(8) The information identified in paragraph (2), above, is classified as proprietary because it contains detailed methods and processes, which GE has developed and applied to pressure-temperature curves for the BWR over a number of years. The development of the BWR pressure-temperature curves was achieved at a significant cost, on the order of ¾ million dollars, to GE.

The development of the evaluation process along with the interpretation and application of the analytical results is derived from the extensive experience database that constitutes a major GE asset.

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