Entergy

Entergy Nuclear Generation Company
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

Charles M. Dugger
Vice President - Operations

May 1, 2002

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

SUBJECT: Entergy Nuclear Generation Company
Pilgrim Nuclear Power Station
Docket No. 50-293

Change to Applicability of Pilgrim's Pressure-Temperature Curves as Described in Technical Specification Figures 3.6.1, 3.6.2, and 3.6.3.

LETTER NUMBER: 2.02.021

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Generation Company (ENGC) hereby requests the following amendment, which extends the applicability of the current pressure-temperature curves from Operating Cycle (OC) 14 to OC 15. The proposed amendment was analyzed as required by 10 CFR 50.91(a) and it is concluded that operation of Pilgrim in accordance with the current pressure-temperature curves for an additional OC does not involve a significant hazards consideration.

ENGC requests approval of the proposed amendment by March 2003 to support RFO# 14 planning. RFO# 14 is expected to commence in April 2003. Once approved, the amendment shall be implemented within 60 days.

If you have any questions or require additional information, please contact Bryan Ford at (508) 830-8403.

Sincerely,

Charles M. Dugger

A001

Commonwealth of Massachusetts)
County of Plymouth)

Then personally appeared before me, Charles M. Dugger, who being duly sworn, did state that he is duly authorized to execute and file the submittal contained herein in the name and on behalf of Entergy Nuclear Generating Company and that the statements are true to the best of his knowledge and belief.

My commission expires: September 20, 2002 Peter M Kohler
DATE NOTARY PUBLIC

202021

Enclosure:
1. ENGC's (Pilgrim) Evaluation of Proposed Technical Specifications Amendment
2. Proposed Technical Specifications Changes (mark-up)
3. Proposed Technical Specification Pages (retyped)
4. List of Regulatory Commitments

cc: Mr. Travis Tate, Project Manager
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Senior Resident Inspector
Pilgrim Nuclear Power Station

ATTACHMENT 1

CHANGE TO APPLICABILITY OF PILGRIM'S PRESSURE-TEMPERATURE CURVES AS DESCRIBED IN TECHNICAL SPECIFICATION

FIGURES 3.6.1, 3.6.2, and 3.6.3

Attachment 1

Subject: Change to Applicability of Pilgrim's Pressure-Temperature Curves as Described in Technical Specification Figures 3.6.1, 3.6.2, and 3.6.3.

1. Description

This letter is a request to amend Operating License DPR-35 for Pilgrim Nuclear Power Station. The proposed change is to Pilgrim Technical Specification Figures 3.6.1, 3.6.2, and 3.6.3, which provide the Pilgrim reactor vessel pressure-temperature (P-T) limits. The proposed change replaces wording in the curves' title block which currently limits use of the curves to Operating Cycle (OC) 14 to wording that will allow use of the curves through the end of OC 15. (OC 15 ends when Pilgrim restarts into OC 16).

Use of the curves at Pilgrim was restricted to OC 14 in License Amendment 190, dated April 13, 2001.

Information on the original capsule pull has been obtained since the approval of License Amendment 190. This information indicates that the jet pumps did not mask the specimens, and that the core had a large number of new fuel bundles (high exposure). Both of these factors indicate the existing fluence calculations are conservative. As discussed in the following, sufficient conservatism in the current curves exists to support extending the applicability of the existing curves. Pilgrim requires this amendment before Refueling Outage 14 ends in April 2003 to operate through OC 15. Therefore, please approve this change by March 2003 to allow time for implementation.

2. Proposed Change

Currently, the title blocks for Figures 3.6.1, 3.6.2, and 3.6.3 contain, in part, the words:

> These curves apply to remainder of Operating Cycle 13 and Operating Cycle 14.

The proposed amendment changes the words to:

> These curves apply to Operating Cycle 14 and Operating Cycle 15. The 32 EFPY curve will be used.

This proposed change extends the use of Pilgrim's existing pressure-temperature curves, issued as Amendment 190 on April 13, 2001, for an additional OC, i.e., OC 15.

3. Background

The proposed amendment changes the application of curves intended to ensure the long-term integrity of Pilgrim's reactor pressure vessel. Information on Pilgrim's reactor pressure vessel may be found in Pilgrim's Updated Final Safety Analysis Report (UFSAR) Section 1.6.1.3.2, "Reactor Vessel and Internals," and UFSAR Appendix M, "Reactor Pressure Vessel Design Report."

By letter dated November 22, 2000, Entergy requested Technical Specification changes to update the pressure-temperature curves. The 32 EFPYs of operation correspond to the end of the current license. The proposed fluence value for 32 EFPYs was determined by extrapolation from the value used for the current pressure-temperature curves. The current value was established from measurements and calculations related to the first surveillance capsule removed in 1980 and described in the Southwest Research Institute (SwRI) report SwRI Project No. 02-5951 and a General Electric supplement to the SwRI report.

The requested change was issued by the NRC as Amendment 190 on April 13, 2001. The NRC noted in their supporting safety evaluation for Amendment 190 that NRC believed Pilgrim's plant-specific dosimetry and/or calculations for the original fluence value were outdated. However, use of the pressure-temperature curves was acceptable for an interim period (one OC) because there are two conservatisms in Pilgrim's fluence value: (1) the curves are estimated for 32 Effective Full Power Years (EFPYs) and were to be used by Amendment 190 to about 19 EFPYs which is a conservatism factor of 1.7; and (2) MDE Report No. 277-1285," Pilgrim Nuclear Power Station Reactor Pressure Vessel Fast Neutron Flux as A Function of Fuel Cycle Revision 1, (L.S. Burns, General Electric Company, Palo Alto, CA, November 27, 1985) projects a conservatism of 25 percent in the predicted peak vessel fluence. The 32 EFPYs pressure-temperature curves are bounding for operation until the end of the current license. Based on these conservatisms and considering the limited time of applicability (OC 14) of the proposed pressure-temperature curves, LA 190 was issued by the NRC. OC 14 is expected to end in May 2003.

4. Technical Analysis

4.1 Analysis

The proposed change is to Pilgrim Technical Specification Figures 3.6.1, 3.6.2, and 3.6.3, which provide the pressure-temperature limits for Pilgrim's reactor pressure vessel. This proposed change does not alter the curves issued by the NRC in LA 190. The proposed change replaces wording in the figures' title blocks that currently limit the curves' use to OC 14. The replacement wording will extend the curves' use through the end of OC 15, which is scheduled to occur in the first quarter of 2005.

The SER supporting LA 190 states that there are two conservatisms in the evaluation of the Pilgrim fluence value: (1) the proposed curves were estimated for 32 EFPYs and are to be used to about 19 EFPYs which is a conservatism factor of 1.7; and (2) MDE Report No. 277-1285, "Pilgrim Nuclear Power Station Reactor Pressure Vessel Fast Neutron Flux as a Function of Fuel Cycle, Revision 1," projects a conservatism of 25 percent in the predicted peak vessel fluence. Based, in part, on these conservatisms, and considering the limited time of applicability of the proposed pressure-temperature curves, NRC issued LA 190.

Pilgrim began with 3 surveillance capsules located circumferentially along the reactor vessel inside radius at the 30 degree, 120 degree and 300 degree azimuths and axially at the reactor vessel core mid-plane. Each surveillance capsule consists of three flux wires made of Copper, Iron and Nickel. The 30-degree capsule was withdrawn in 1980 after 4.17 EFPYs of operation. The flux wire measurements derived from the Pilgrim surveillance capsule removed from the Pilgrim reactor vessel during the 1980 refueling outage and the neutron transport calculations performed in 1985 form the bases of the calculations of projected fluence values used to predict future adjustments to the reactor vessel pressure-temperature limits.

These fluence calculations are very conservative for the following reasons:

The vessel jet pumps do not mask the capsules because the capsules are positioned between two separate pairs of jet pumps. Thus the capsules are not shadowed by the jet pumps and receive full exposure from the core. The dosimeter (fluence) measurements taken in 1980, when projected out to 1985, were less than the calculated fluence derived from the 1985 neutron transport calculations using the one-dimensional neutron transport code ANSIN. This also indicated that the calculated fluence values are conservative when compared to actual measurements.

The fluence data of 1980 was taken at the end of OC 4. Pilgrim's OC 4 had an unusually large number of new fuel bundles and consequently high exposure bundles were placed in the edge bundle locations. It was found that the vessel flux decreased with fuel cycles after OC 4. OCs 4, 5, 6 and 7 were used as a composite model for future core reloads and fluence values are projected out to the end of life based on the results of this composite model. Projections of fluence based on this model would thus be conservatively high and the conservatism would compound when extrapolated out to end-of-life.

As noted in the NRC SER supporting LA 190, the neutron energy spectrum calculations were not included as part of the Pilgrim Neutron Flux/ Fuel Cycle report (GE MDE Report No. 277-1285). However, the results from these calculations were addressed. The SER noted that this report provided conservative projections that were 25% higher than predicted peak vessel fluence.

The fluence calculations are used in the analyses of the reactor vessel beltline material to determine the projected shift in the Pilgrim pressure-temperature limit curves. These calculations were performed in accordance with the guidelines of NRC Reg Guide 1.99, Rev 2, which provides an additional statistical margin of conservatism for plate and weld material adjusted reference temperature. The determination of the shift in reference nil-ductility temperature, which relies on the fluence calculations, must also meet the requirements of 10 CFR 50, Appendix G and the ASME Code Appendix G which also provides additional conservatism to the pressure-temperature limits.

In addition to the above conservatisms, Pilgrim will use the 32 EFPY curve for controlling plant operation. The actual EFPYs are expected to be at approximately 21 EFPYs at the end of the requested applicability. The requested change will have an additional conservatism factor of 1.5.

Pilgrim is restricted from operation beyond the current cycle (OC 14). Based on the conservatisms noted above, a one-cycle extension continues to provide a significant amount of protection from brittle fracture of the reactor vessel.

Also, an extension to operate through OC 15 would provide the following benefits:

- Pilgrim is a member of the BWRVIP and will participate in the Integrated Surveillance/Supplemental Surveillance (ISP/SSP) programs. These programs will provide new surveillance data that is not currently available but would become available within the next few years. Pilgrim would benefit from the knowledge obtained from this program. However, the information may not be available prior to the next cycle.

- Pilgrim intends to perform new neutron transport calculations within the next cycle of operation. However, there are only a few vendors currently available to perform these complex calculations. Also, there are a limited number of computer software codes capable of performing these calculations. The Electric Power Research Institute (EPRI) is working to develop a new state-of-the-art computer code to perform these calculations, but the software will not become available before the first quarter of 2003. The one-cycle extension would give Pilgrim sufficient time to perform new neutron transport calculations and have new dosimetry data available through the ISP/SSP program.

- Pilgrim is currently at 17 EFPY (mid-cycle 14) and expects to reach slightly less than 21 EFPY by the end of the next cycle (Cycle 15, April 2005). Pilgrim will continue to apply the 32 EFPY restriction on the reactor vessel pressure-temperature limits. The use of the 32 EFPY pressure-temperature limit curves of the Technical Specifications provides a conservative margin of 1.5 and, along with the additional margins previously discussed, will compensate for limitations of the current neutron transport calculations and compensate for the change in the activation and transport cross sections which have occurred since the calculations were performed.

4.2 Summary

The current restriction limits use of the curves to a one OC period during which, it was then believed, Pilgrim could perform plant-specific calculations based on new, NRC approved methodologies that would result in up-to-date pressure-temperature curves. However, delays associated with vendor-supplied calculational tools have delayed Pilgrim's development of new P-T curves, and it is not possible to submit new curves in time to support restart into OC 15. Furthermore, based on our evaluation, and as reflected in the NRC's SER supporting LA 190, sufficient conservatism exists in the current curves to extend their use at least one additional OC. The current restriction, OC 14, will result in approximately 19 EFPYs, well below the 32 EFPY curve, resulting in a conservatism factor of 1.7. Using the curves until the end of OC 15 results in approximately 21 EFPYs and a conservatism factor of 1.5. Therefore, the EFPY at the end of OC 15 is sufficiently below the 32 EFPY bounding curve to provide reduced but satisfactory conservatism. Based on these considerations, Pilgrim has concluded that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) Pilgrim's activities will continue to be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5. Regulatory Safety Analysis

5.1 No Significant Hazards Consideration

ENGC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment extending the applicability of the P-T curves in Figures 3.6.1, 3.6.2, and 3.6.3 by focusing on the three standards set forth in 10 CFR50.92, "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 proposed License Amendment (LA) does not involve a significant increase in the probability or consequences of an accident previously evaluated. There are no physical changes to the plant being introduced by the proposed changes to a restriction associated with the pressure-temperature curves. The proposed change does not modify the reactor coolant pressure boundary, (i.e., there are no changes in operating pressure, materials, or seismic loading). The proposed change does not adversely affect the integrity of the reactor coolant pressure boundary such that its function in the control of radiological consequences is affected.

The current pressure-temperature curves were generated in accordance with the fracture toughness requirements of 10 CFR Part 50, Appendix G, and American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Appendix G and NRC Regulatory Guide 1.99, Revision 2, *"Radiation Embrittlement of Reactor Vessel Materials."* The current pressure-temperature curves were established in compliance with the methodology used to calculate and predict effects of radiation on embrittlement of reactor vessel beltline materials. The current curves were approved by the NRC in License Amendment 190, but limited to use in OC 14. The proposed license amendment extends use of the current curves one additional operating cycle (OC) (end-of-cycle 15) because sufficient margin exists between the actual Effective Full Power Years (EFPYs) (~ 21 EFPYs) at end-of-cycle 15 and the end-of-life curve (32 EFPYs). This license amendment provides compliance with the intent of 10 CFR Part 50, Appendix G, and provides margins of safety that assure reactor vessel integrity.

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

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

Response: No.

The proposed license amendment does not create the possibility of new or different kind of accident from any accident previously evaluated. The current pressure-temperature curves were generated in accordance with the fracture toughness requirements of 10 CFR Part 50, Appendix G, and ASME B&PV Code, Section XI, Appendix G, and were approved by the NRC. The proposed license amendment extends use of the current curves one additional OC (OC 15). However, compliance with the proposed pressure-temperature curves will ensure the avoidance of conditions in which brittle fracture of primary coolant pressure boundary materials is possible because such compliance with the current pressure-temperature curves provides sufficient protection against a non-ductile-type fracture of the reactor pressure vessel. No new modes of operation are introduced by the proposed change. The proposed change will not create any failure mode not bounded by previously evaluated accidents. Further, the proposed change does not affect any activities or equipment and is not assumed in any safety analysis to initiate any accident sequence. 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.

The current curves are based on established NRC and ASME methodologies in force when LA 190 was approved. The proposed license amendment extends the use of the current curves for one additional OC; such extension is acceptable because sufficient margin exists between actual EFPYs (~21 EFPY) at end-of-cycle 15 and the end-of-life curve (32 EFPY) to yield a conservatism factor of 1.5.

Operation within the current limits ensures that the reactor vessel materials will continue to behave in a non-brittle manner, thereby preserving the original safety design bases. No plant safety limits, set points, or design parameters are adversely affected by the proposed changes. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

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

5.2 Applicable Regulatory Requirements/Criteria

5.2.1 Regulations

The NRC has established requirements in Title 10 of the Code of Federal Regulations Part 50 (10 CFR 50) to protect the integrity of the reactor coolant pressure boundary in nuclear power plants. The staff evaluates the pressure-temperature curves based on the following NRC regulations and guidance: 10 CFR Part 50, Appendix G; Generic Letter (GL) 88-11; GL 92-01, Revision 1; GL92-01, Revision 1, Supplement 1; Regulatory Guide (RG) 1.99, Revision 2 (Rev.2); and Standard Review Plan (SRP) Section 5.3.2. Generic Letter 88-11 advises licensees that the staff would use RG 1.99, Rev. 2, to review pressure-temperature limit curves. RG 1.99, Rev. 2, contains methodologies for determining the increase in transition temperature and the decrease in upper-shelf energy (USE) resulting from neutron radiation. Generic Letter 92-01, Rev.1, requested that licensees submit their RPV data for their plants to the staff for review. Generic Letter 92-01, Rev. 1, Supplement 1, requested that licensees provide and assess data from other licensees that could affect their RPV integrity evaluations. This data is used by the staff as the basis for the staff's review of pressure-temperature limit curves and as the basis for the staff's review of pressurized thermal shock (PTS) assessments (10 CFR 50.61 assessments). Appendix G to 10 CFR Part 50 requires that pressure-temperature limit curves for the RPV be at least as conservative as those obtained by applying the methodology of Appendix G to Section XI of the ASME Code.

Standard Review Plan (SRP) Section 5.3.2 provides an acceptable method of determining the pressure-temperature curves for ferritic materials in the beltline of the reactor pressure vessel (RPV) based on the linear elastic fracture mechanics (LEFM) methodology of Appendix G to Section XI of the ASME Code. The basic parameter of this methodology is the stress intensity factor K_I which is a function of the stress state and flaw configuration. Appendix G requires a safety factor of 2.0 on stress intensities resulting from reactor pressure during normal and transient operating conditions, and a safety factor of 1.5 for hydrostatic testing curves. The methods of Appendix G postulate the existence of a sharp surface flaw in the RPV that is perpendicular to the direction of the maximum stress. This flaw is postulated to have a depth that is equal to ¼ thickness (1/4T) of the RPV beltline thickness and a length equal to 1.5 times the RPV beltline thickness. The critical locations in the RPV beltline region for calculating heatup and cooldown pressure-temperature curves are the 1/4T and 3/4 thickness (3/4T) locations, which correspond to the maximum depth of the postulated inside surface and outside surface defects, respectively.

The Appendix G ASME Code methodology requires that licensees determine the adjusted reference temperature (ART or adjusted RT_{NDT}). ART is defined as the sum of the initial (unirradiated) reference temperature (initial RT_{NDT}), the mean value of the adjustment in reference temperature caused by irradiation (Delta RT_{NDT}), and a margin (M) term.

Delta RT_{NDT} is a product of a chemistry factor and a fluence factor. The chemistry factor is dependent upon the amount of copper and nickel in the material and may be determined from the table in RG 1.99, Rev. 2, or from surveillance data. The fluence factor is dependent upon the neutron fluence at the maximum postulated flaw depth. The margin term is dependent upon whether the initial RT_{NDT} is a plant-specific or a generic value and whether the chemistry factor (CF) was determined using the tables in RG 1.99, Rev. 2, or surveillance data. The margin term is used to account for uncertainties in the values of the initial RT_{NDT} , the copper and nickel content, the fluence, and the calculational procedures. RG 1.99, Rev. 2, describes the methodology to be used in calculating the margin term and the initial RT_{NDT} .

5.2.2. Design Basis (UFSAR)

UFSAR Section 1.6.1.3.2, "Reactor Vessel and Internals, "provides a brief description of the reactor vessel and its internals and some of the parameters to which it was fabricated.

UFSAR Appendix M, "Reactor Pressure Vessel Design Report," provides information on the purchase specifications for the reactor vessel.

5.2.3. Approved Methodologies

The methodologies used to develop the current pressure-temperature curves are as discussed in 5.2.1, "Regulations," provided above. It is also discussed in the NRC's SER in support of issuing LA 190.

5.2.4. Analysis

ENGC used NRC approved codes and methodologies as described in above Section 5.2.1. The NRC reviewed and approved the ENGC analysis results in LA 190. However, due to the age of Pilgrim's fluence calculation a one-cycle (OC 14) restriction was imposed on using the LA 190 curves. The restriction was imposed to allow time to develop and submit new neutron transport calculations, and (if necessary) new pressure-temperature curves. The one cycle restriction was supported by the conservatism within the existing analysis and tributary inputs. Such conservatism resulted in a conservatism factor of 1.7 when the one cycle restriction is applied to the curves; the application of one additional cycle results in a conservative margin of 1.5.

5.2.5 Conclusions

The technical analysis performed by ENGC demonstrates that extending the use of the current pressure-temperature curves for an additional OC results in a decrease in the margin of conservatism from 1.7 to 1.5. This decrease is not significant and this conservatism factor is sufficient to ensure reactor vessel integrity.

ENGC also concludes that approved methodologies were used, and that regulatory requirements continue to be met.

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

6.0 Environmental Consideration

The amendment changes a requirement with respect to use of a facility component located within the restricted area as defined in 10 CPR Part 20. Pilgrim has determined that the amendment involves no significant increases in the amounts, and no significant change in the types, of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure. Pilgrim also finds that the proposed amendment involves no significant hazards consideration. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Hence, pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 References

1. Letter from M. Bellamy, Entergy Nuclear Generation Company to U.S. NRC "Request for Technical Specification Change Concerning Pressure-temperature Limit Curves of Figures 3.6.1, 3.6.2, and 3.6.3," dated November 22, 2000.

2. SwRI Project No. 02-5951, " Pilgrim Nuclear Station Unit 1 Reactor Vessel Irradiation Surveillance Program," by E.B. Norris, Southwest Research Institute, July 1981. (Docketed)

3. MDE Report No. 277-1285, "Pilgrim Nuclear Power Station Reactor Pressure Vessel Fast Neutron Flux as A Function of Fuel Cycle," Revision 1, by L.S. Burns General Electric Company, Palo Alto, CA, November 27, 1985. (Docketed)

4. Letter from M. Bellamy, Entergy Nuclear Generation Company to U.S. NRC, "Modification of Technical Specification Change Submittal Concerning Pressure-temperature Limit Curves," dated February 2, 2001.

ATTACHMENT 2

PROPOSED PILGRIM TECHNICAL SPECIFICATION CHANGE (MARK-UP)

FIGURES 3.6.1, 3.6.2, and 3.6.3

PILGRIM REACTOR VESSEL PRESSURE-TEMPERATURE LIMITS
HYDROSTATIC AND LEAK TESTS

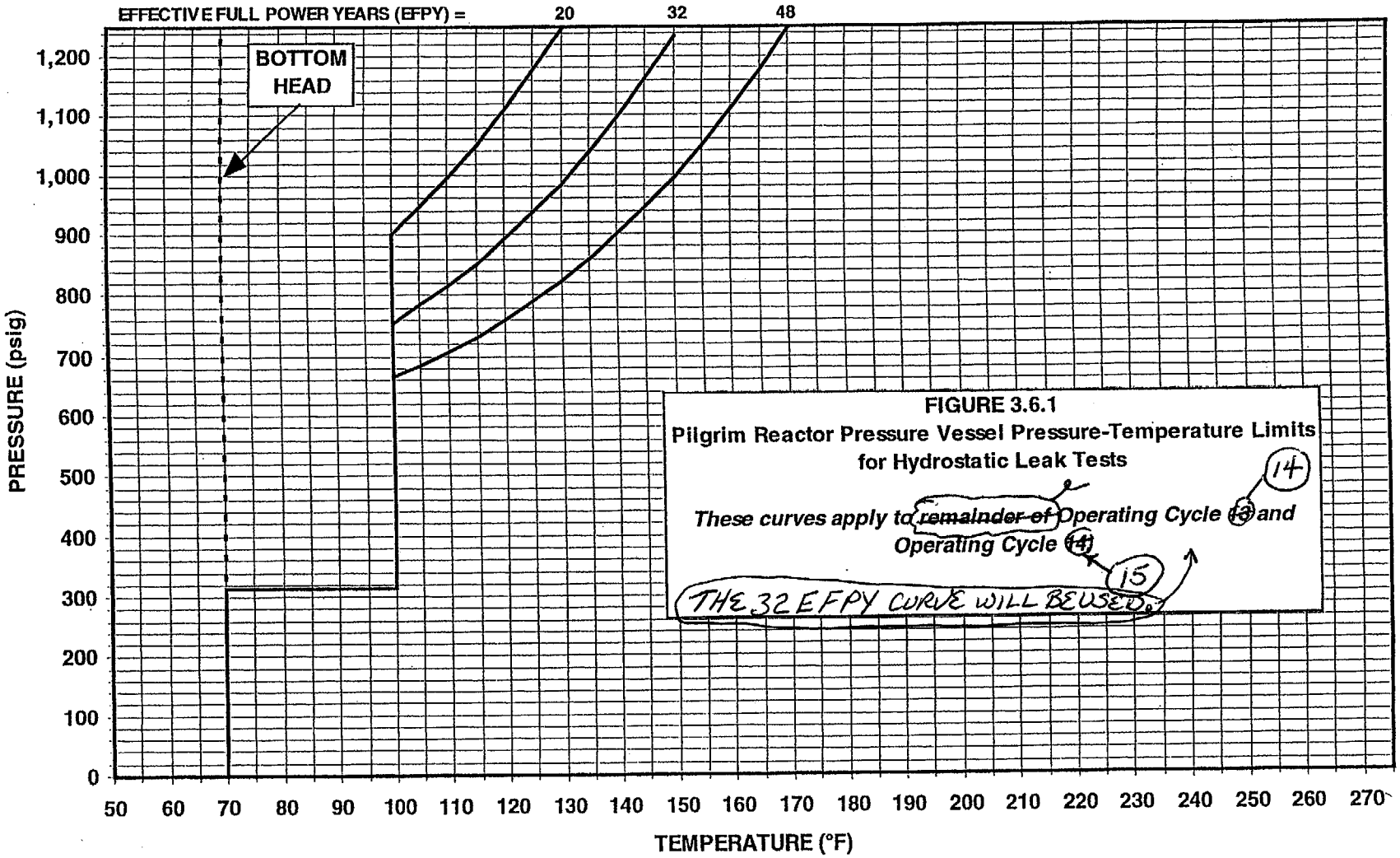

FIGURE 3.6.1
Pilgrim Reactor Pressure Vessel Pressure-Temperature Limits for Hydrostatic Leak Tests

These curves apply to ~~remainder of~~ Operating Cycle ~~13~~ 14 and Operating Cycle ~~14~~ 15

THE 32 EFPY CURVE WILL BE USED.

PILGRIM REACTOR VESSEL PRESSURE-TEMPERATURE LIMITS
SUBCRITICAL HEATUP AND COOLDOWN

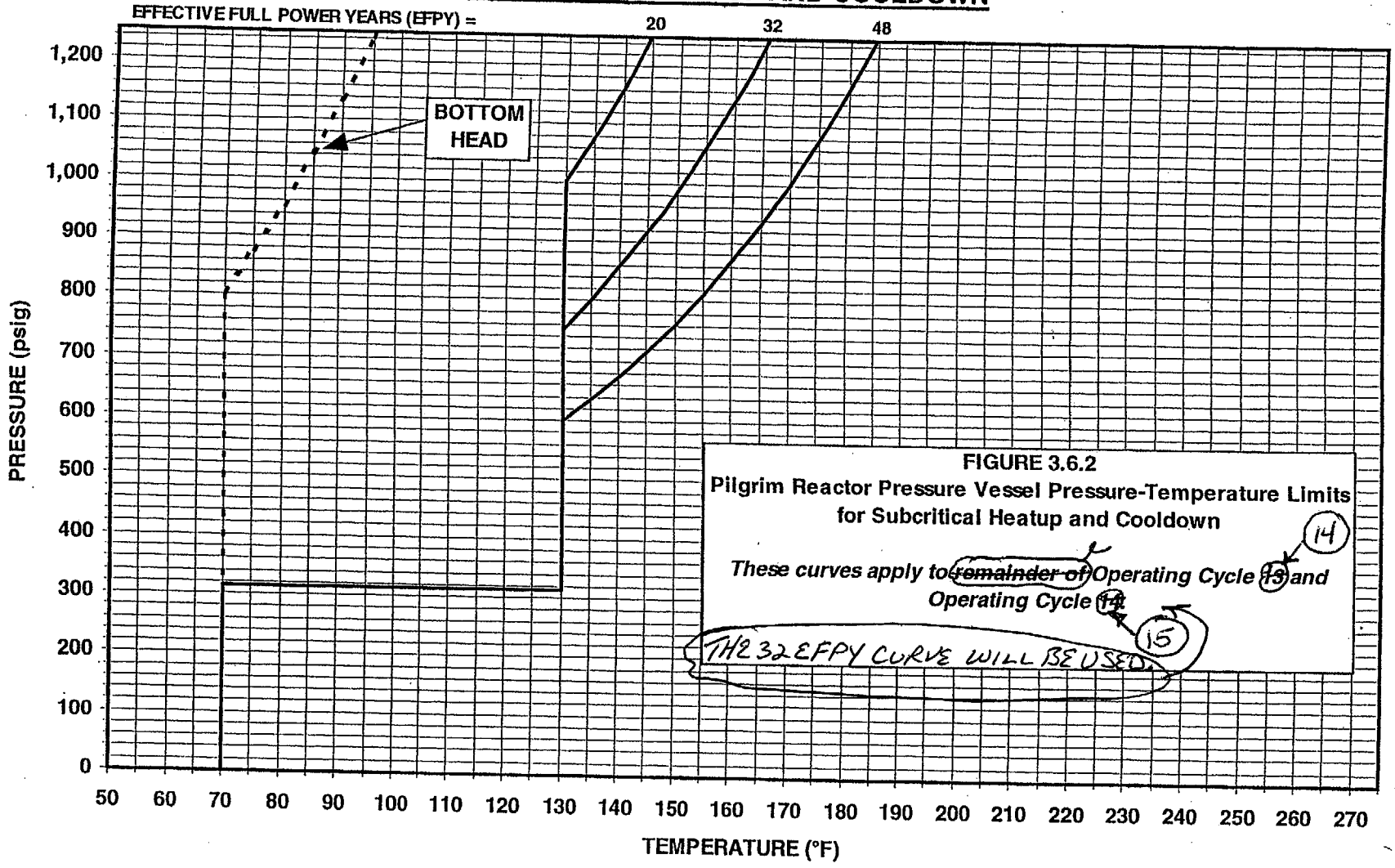

FIGURE 3.6.2
Pilgrim Reactor Pressure Vessel Pressure-Temperature Limits for Subcritical Heatup and Cooldown

These curves apply to ~~remainder of~~ Operating Cycle ~~13~~ 14 and Operating Cycle ~~14~~ 15

THE 32 EFPY CURVE WILL BE USED

PILGRIM REACTOR VESSEL PRESSURE-TEMPERATURE LIMITS
CRITICAL CORE OPERATION

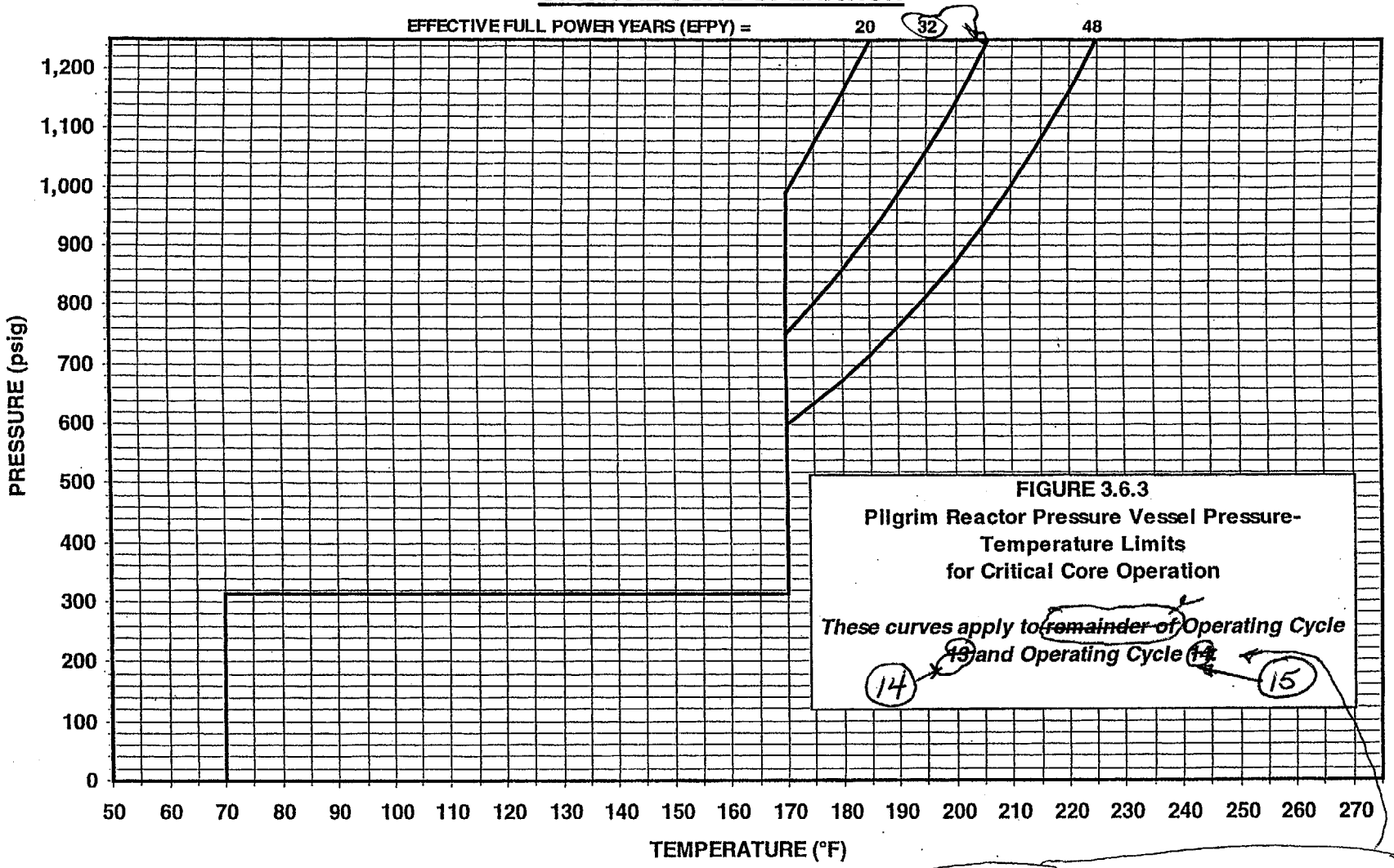

FIGURE 3.6.3
Pilgrim Reactor Pressure Vessel Pressure-Temperature Limits for Critical Core Operation

These curves apply to ~~remainder of~~ Operating Cycle ~~13~~ 14 and Operating Cycle ~~14~~ 15

THE 32 EFPY CURVE WILL BE USED.

ATTACHMENT 3

PROPOSED PILGRIM TECHNICAL SPECIFICATION PAGES

FIGURES 3.6.1, 3.6.2, and 3.6.3

PILGRIM REACTOR VESSEL PRESSURE-TEMPERATURE LIMITS
HYDROSTATIC AND LEAK TESTS

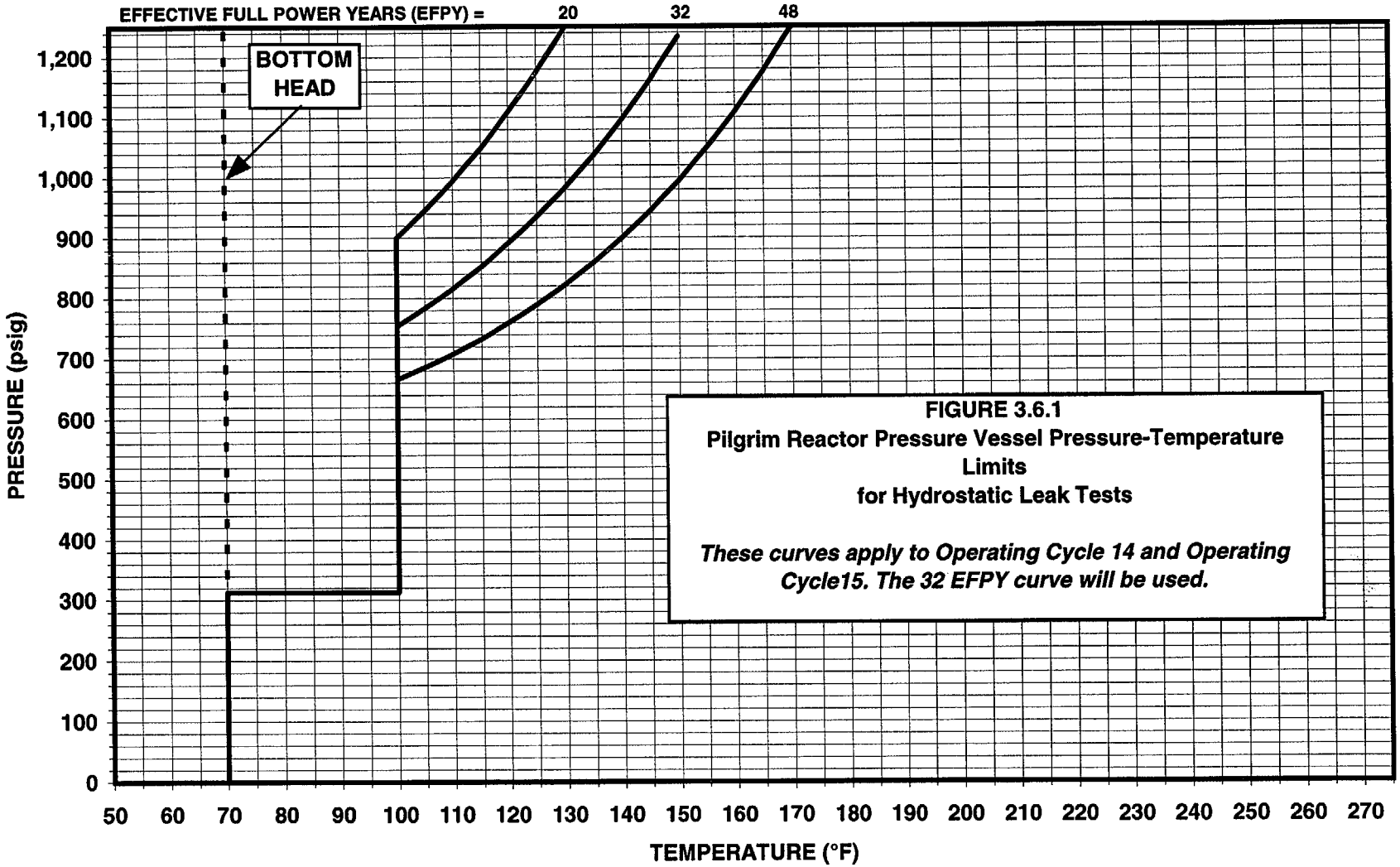

FIGURE 3.6.1
Pilgrim Reactor Pressure Vessel Pressure-Temperature Limits for Hydrostatic Leak Tests

These curves apply to Operating Cycle 14 and Operating Cycle15. The 32 EFPY curve will be used.

PILGRIM REACTOR VESSEL PRESSURE-TEMPERATURE LIMITS
SUBCRITICAL HEATUP AND COOLDOWN

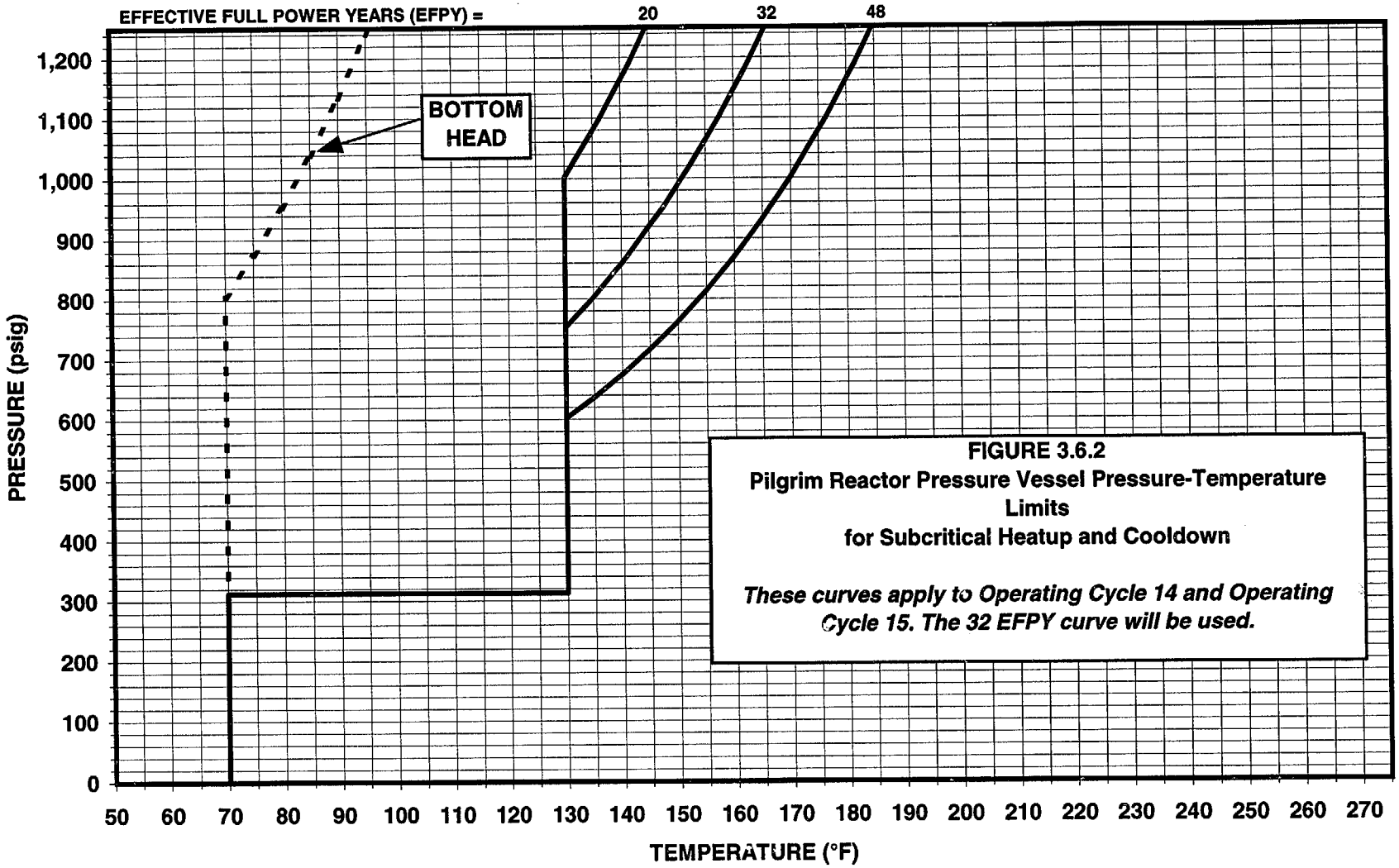

FIGURE 3.6.2
Pilgrim Reactor Pressure Vessel Pressure-Temperature Limits for Subcritical Heatup and Cooldown

These curves apply to Operating Cycle 14 and Operating Cycle 15. The 32 EFPY curve will be used.

PILGRIM REACTOR VESSEL PRESSURE-TEMPERATURE LIMITS
CRITICAL CORE OPERATION

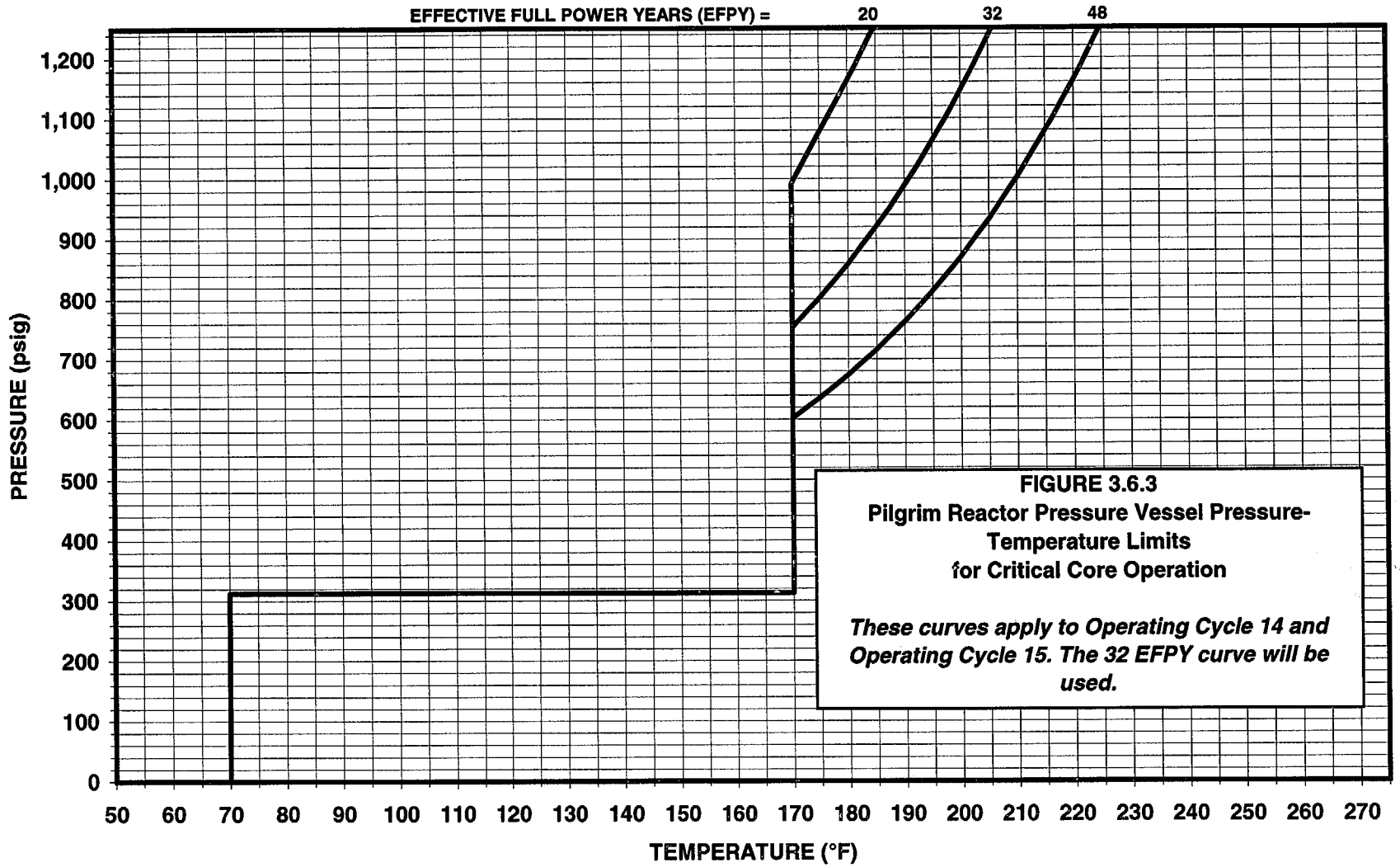

FIGURE 3.6.3
Pilgrim Reactor Pressure Vessel Pressure-Temperature Limits for Critical Core Operation

These curves apply to Operating Cycle 14 and Operating Cycle 15. The 32 EFPY curve will be used.

ATTACHMENT 4

LIST OF REGULATORY COMMITMENTS

ATTACHMENT 4

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by ENGC in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to Mr. Bryan Ford at (508) 830-8403.

REGULATORY COMMITMENTS	DUE DATE
Develop and submit to NRC up-to-date pressure-temperature curves for Pilgrim	Prior to startup from RFO15