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An Exelon/British Energy Company

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June 3, 2002
2130-02-20148

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

Subject: Oyster Creek Generating Station
Docket No. 50-219
ASME Section XI Relief Request R17, Revision 1
Response to Request for Additional Information

Reference: AmerGen letter 2130-01-20195 dated September 14, 2001, "ASME Section XI Relief Request R17, Revision 1"

The enclosure to this letter provides a response to a request for additional information concerning the referenced AmerGen Energy Company, LLC (AmerGen) letter. Proposed responses to the questions were discussed during a May 15, 2002 telephone conference with the NRC staff. The referenced relief request pertains to examination coverage for reactor vessel shell axial welds.

Should you have any questions or require any additional information please contact Mr. Paul F. Czaya at 610-765-5952.

Sincerely,

Michael P. Gallagher
Director – Licensing, Mid-Atlantic Regional Operating Group

Enclosure: ASME Section 11 Code Request R17, Revision 1
Response to Request for Additional Information

c: H. J. Miller, Administrator, USNRC Region I
R. J. Summers, USNRC Senior Resident Inspector, Oyster Creek
Peter S. Tam, USNRC Senior Project Manager, Oyster Creek (Acting)
File No. 01042

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# Enclosure

# Response to Request for Additional Information

# Relief Request R17, Revision 1

# Request for Relief from Achieving More Than 90% of the Examination Volume of Certain Reactor Pressure Vessel Axial Shell Welds

NRC Question 1

Were your calculations based on 114 degrees F or 70 degrees F mean $RT_{ndt}$?

Response

The Oyster Creek (OC) evaluation uses OC-specific information together with the methodology from Boiling Water Reactor Vessel and Internals Project (BWRVIP) Report, "BWR Reactor Pressure Vessel Shell Weld Inspection Recommendations (BWRVIP-05)." The OC data includes weld chemistry information and reactor pressure vessel (RPV) dimensions. In the evaluation, a mean $RT_{ndt}$ of approximately 60 degrees F was used.

NRC Question 2

Why is your Vessel Failure Probability six times an order of magnitude lower than the BWR fleet?

Response

The failure probabilities are lower for two primary reasons:

a) OC-specific weld chemistry values were used in the evaluation (Cu = 0.21, Ni = 0.07, initial $RT_{ndt}$ = -8°F). These values are significantly lower than the bounding values used in the BWRVIP-05 calculations. This difference has a significant impact on the probability of failure. Note also that, based on Structural Integrity Associates' earlier materials evaluation, the use of –50°F for initial $RT_{ndt}$ could have been used. Instead, for conservatism, the combination of $RT_{ndt}$ = -8°F and the OC-specific Cu and Ni values were used.

b) The failure probabilities in BWRVIP-05 were determined using bounding values for weld chemistry and RPV geometry. The BWRVIP-05 analysis used a RPV thickness of 5.25 inches and a diameter of 225.2 inches. This compares with a thickness of over 7 inches and a diameter of 213 inches for the OC vessel. These differences result in a significant reduction in the hoop stress compared to the BWRVIP-05 evaluation, which significantly reduces the failure probability.

NRC Question 3

What are your values for Conditional Failure Probability and Low Temperature Overpressure (LTOP) Frequency?

Response

The conditional failure probability is $2.5 \times 10^{-9}$ per year. The LTOP frequency is $1 \times 10^{-3}$ per year. This results in a total probability of failure of $2.5 \times 10^{-12}$ per year.