June 30, 2003

NG-03-0474
10 CFR 50.90

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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DUANE ARNOLD ENERGY CENTER
DOCKET 50-331
LICENSE No. DPR-49
SUBJECT: Revised Pages for General Electric Co. Report, GE-NE-A22-00100-08-01-R1, "Pressure-Temperature Curves for Alliant Energy Duane Arnold Energy Center"
REFERENCE: Letter, M. Peifer (NMC) to USNRC, "Revision of Technical Specification Change Request (TSCR-059A): 'Update to Reactor Coolant System Pressure and Temperature Limit Curves'," NG-03-0304, dated May 2, 2003.

In the referenced letter, Nuclear Management Company, LLC (NMC) submitted a request for revision to the Duane Arnold Energy Center (DAEC) Technical Specifications. In support of that application, we submitted a General Electric Co. (GE) technical report (GE-NE-A22-00100-08-01-R1), which GE requested be treated as proprietary and withheld from public disclosure pursuant to 10 CFR 9.17(a)(4), 2.790(a)(4) and 2.790(d)(1). An affidavit supporting that request was provided, along with a redacted, non-proprietary version of that report (GE-NE-A22-00100-08-01a-R1) suitable for public disclosure.

During the Staff's review of our application, they discovered some inconsistencies in the designation of proprietary information contained within the GE reports. A listing of those inconsistencies was provided to us electronically on June 19, 2003. GE has reviewed that list and determined that there are some errors in the marking of proprietary material. Those errors have been corrected and new, replacement pages for both the proprietary and non-proprietary versions of the report are attached. No changes to the technical content have been made. The replacement proprietary pages should be withheld from public disclosure, pursuant to the original affidavit transmitted with the referenced application and GE requests that the superceded pages be destroyed.

It should be noted that for one of the items, the Staff stated that the material cannot be held in confidence, as it is already within the public domain, and cited the reference document for that disclosure. Upon subsequent review by GE, it appears that the Staff should not have disclosed this information to the public, as the cited material was designated as proprietary in the source document, and the Staff had accepted GE's affidavit to that effect prior to making the information public. Consequently, GE requests that this information be removed from the public domain, per their affidavit, and

APO1

that it continue to be treated as proprietary in the current DAEC reports. Therefore, those affected pages in the reports for the DAEC have not been revised.

Please contact this office if you have any further questions regarding this matter.

This letter contains no new commitments.

Sincerely,

Mark A. Peifer
Site Vice President, Duane Arnold Energy Center

Attachments: 1) Revised Proprietary Pages for GE Report - GE-NE-A22-00100-08-01-R1
2) Revised Non-Proprietary Pages for GE Report - GE-NE-A22-00100-08-01a-R1

CC: J. Dyer, USNRC, Region III
D. Hood (NRC-NRR)
NRC Resident Inspector

Attachment 2 to
NG-03-0474
July 1, 2003

Revised Non-Proprietary Pages

for GE Report -

GE-NE-A22-00100-08-01a-R1

4.3.2.1.1 Pressure Test - Non-Beltline, Curve A (Using Bottom Head)

In a finite element analysis [ ], the CRD penetration region was modeled to compute the local stresses for determination of the stress intensity factor, K_I. The evaluation was modified to consider the new requirement for M_m as discussed in ASME Code Section XI Appendix G [6] and shown below. The results of that computation were K_I = 143.6 ksi-in$^{1/2}$ for an applied pressure of 1593 psig (1563 psig preservice hydrotest pressure at the top of the vessel plus 30 psig hydrostatic pressure at the bottom of the vessel). The computed value of ($T - RT_{NDT}$) was 84°F.

The limit for the coolant temperature change rate is 20°F/hr or less.

Pressure Test CRD Penetration K_I and ($T - RT_{NDT}$) as a Function Of Pressure

Nominal Pressure (psig)	K_I (ksi-in$^{1/2}$)	$T - RT_{NDT}$ (°F)
1563	144	84
1400	129	77
1200	111	66
1000	92	52
800	74	33
600	55	3
400	37	-88

The highest RT_{NDT} for the bottom head plates and welds is 44°F, as shown in Tables 4-1 and 4-2.

G.1 Overview and Objective

Neutron irradiation of reactor pressure vessel (RPV) causes reduction in material ductility and creates structural embrittlement at higher operating temperatures. The effect is particularly significant when impurities such as nickel, copper, or phosphorus are imbedded in noticeable levels, as commonly true for the RPV steel. Therefore determination of neutron fluence level is one of the first steps toward RPV fracture toughness evaluations. Neutron fluence is accumulated neutron flux during irradiation time.

G.2.1 Scope

Fast neutron flux densities in the beltline region extending from the core through the RPV are calculated in this task. The operating condition assumed for this analysis corresponds to 120% of the ORTP.

The methodology used for the neutron flux calculation is documented in a Licensing Topical Report (LTR) NEDC-32983P-A [1], which was approved by the NRC for licensing applications in the Safety Evaluation Report (SER) [2]. In general, GE's methodology described in the LTR follows the intent of Regulatory Guide 1.190 [4] for neutron flux evaluation. This methodology is briefly discussed below.

G.2.2 Method of Evaluation

G.4 REFERENCES

1. NEDC-32983P-A, Revision 1, "Licensing Topical Report, General Electric Methodlogy for Reactor Pressure Vessel Fast Neutron Flux Evaluations", December 2001.

2. Letter, S.A. Richards, USNRC to J.F. Klapproth, GE-NE, "Safety Evaluation for NEDC-32983P, General Electric Methodology for Reactor Pressure Vessel Fast Neutron Flux Evaluations (TAC NO. MA9891)", MFN 01-050, September 14, 2001.

3. CCC-543 "TORT-DORT Two-and Three-Dimensional Discrete Ordinates Transport Version 2.8.14" Radiation Shielding Information Center (RSIC), January 1994.

4. Regulatory Guide 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence", USNRC March 2001.

5. Letter, S. A. Richards (USNRC) to G. A. Watford, "Amendment 26 to GE Licensing Topical Report NEDE-24011-P-A, GESTAR II – Implementing Improved GE Steady-State Methods (TAC No. MA6481)", November 10, 1999.

6. Alliant Energy transmittal NG-00-1026, R. McGee (DAEC) to W. Farrell (GE) "Transmittal of DIR T0313 AEP Flux Analysis" 6-8-2000.