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August 3, 2007

Docket No.: 50-321

NL-07-1491

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

Edwin I. Hatch Nuclear Plant - Unit 1
Response to Request for Additional Information Concerning Projected Fluence
Values for the Limiting Circumferential Weld

Ladies and Gentlemen:

Pursuant to your request for additional information of July 6, 2007 Southern Nuclear Operating Company (SNC) hereby provides its response concerning the projected fluence values for the limiting circumferential weld. ISI-ALT-8 (letter NL-07-0270, dated March 8, 2007) was submitted to extend the authorization for the elimination of the RPV circumferential shell weld examinations required by ASME Code through the renewed license period of extended operation (PEO) at Plant Hatch-Unit 1.

NRC's request for additional information and SNC's response are provided in the enclosure to this letter.

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

A handwritten signature in black ink, appearing to read "B. J. George", written over a horizontal line.

B. J. George
Manager, Nuclear Licensing

BJG/PAH/daj

Enclosure: Restatement of NRC Request for Information and SNC Response
for Plant Hatch - Unit 1 Concerning Projected Fluence Values for
the Limiting Circumferential Weld

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. D. R. Madison, Vice President – Hatch
Mr. D. H. Jones, Vice President – Engineering
RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. R. E. Martin, NRR Project Manager – Hatch
Mr. J. A. Hickey, Senior Resident Inspector – Hatch

**Edwin I. Hatch Nuclear Plant - Unit 1
Response to Request for Additional Information Concerning Projected
Fluence Values for the Limiting Circumferential Weld**

Enclosure

**Restatement of NRC Request for Information and
SNC Response for Plant Hatch - Unit 1**

Enclosure

Restatement of NRC Request for Information and SNC Response for Plant Hatch - Unit 1 Concerning Projected Fluence Values for the Limiting Circumferential Weld

Restatement of NRC Request for Additional Information

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), Request for Alternative ISI-ALT-8 proposed an alternative to extend the authorization for the elimination of the Reactor Vessel (RV) circumferential shell weld examinations required by the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI through the end of the extended period of operation at Hatch 1. In its January 28, 2005 Safety Evaluation Report (SER) for your original relief request on this topic (RR-38), the NRC staff authorized the elimination of these circumferential shell weld examinations only through July 31, 2007. The staff approval of RR-38 for this limited duration was based on a finding that the neutron fluence values used in RR-38 to justify elimination of the RV circumferential weld examinations through the end of the extended period of operation were based on a fluence calculational methodology (RAMA) that had not yet been reviewed and approved by the NRC staff at that time.

The use of the RAMA fluence methodology was subsequently reviewed and conditionally approved by the NRC in an SER dated May 13, 2005. The conditions for the application of the RAMA fluence methodology to the RV fluence calculations at Hatch 1 have been met.

The staff requests that you confirm whether the projected fluence value for the limiting circumferential weld at the end of the extended period of operation at Hatch 1 (i.e., the fluence intended for use as a basis for the current request, ISI-ALT-08) is the same as that reported for Hatch 1 in Enclosure 1 of RR-38 for the period corresponding to 54 effective full power years (EFPY) of facility operation. If the 54 EFPY fluence for Request ISI-ALT-8 is different than what was originally reported in Enclosure 1 of RR-38 for 54 EFPY, please provide an updated mean RT_{NDT} value for the limiting Hatch 1 circumferential shell weld and compare it to the acceptance criterion for the circumferential weld RT_{NDT} value specified for Combustion Engineering fabricated RVs in Table 2.6-5 of the July 28, 1998, NRC SER for the Boiling Water Reactor Vessel and Internals Project (BWRVIP)-05 report, "BWR Vessel and Internals Project, BWR Reactor Pressure Vessel Shell Weld Inspection Recommendations (BWRVIP-05)."

Enclosure

Restatement of NRC Request for Information and SNC Response for Plant Hatch - Unit 1 Concerning Projected Fluence Values for the Limiting Circumferential Weld

SNC Response for Plant Hatch - Unit 1

The projected fluence value calculated by RAMA for the limiting circumferential weld at the end of the period of extended operation (PEO) at Hatch 1 is higher than that previously reported for Hatch 1 in Enclosure 1 of Relief Request 38 (RR-38). As noted in the request for additional information (RAI), Relief Request RR-38, which used GE fluence methodology, was approved on a limited time basis (through July 2007) pending review and approval by the NRC of the RAMA fluence methodology. ISI-ALT-8 proposed a code alternative to examination of the circumferential welds that would extend through the PEO based on calculations using the RAMA methodology. As shown in the table below, the fluence at the end of the PEO was previously stated in RR-38 as 0.236×10^{19} n/cm² while the RAMA calculated fluence used in ISI-ALT-8 at the end of the PEO is 0.296×10^{19} n/cm². The end of the PEO for Plant Hatch Unit 1 in RR-38 was based on an assumed 90% capacity factor, or 54 EFPY (effective full power years of operation). For the RAMA calculations, a more detailed evaluation of the capacity factor was performed, which resulted in the end of the PEO being defined at 49.3 EFPY.

For comparison purposes, updated values for the limiting Hatch 1 circumferential shell weld at the end of the PEO and the values specified for Combustion Engineering (CE) fabricated RVs in Table 2.6-5 of the July 28, 1998, NRC SER are shown in the below table. Also included for comparison are the values used as the basis for RR-38.

As demonstrated in the table, the increase in projected fluence using the RAMA methodology has resulted in a slight increase in mean RT_{NDT} at the end of the PEO (53.3 vs. 48.5). However, the Hatch 1 RT_{NDT} is still bounded by the mean RT_{NDT} calculated using either CE(VIP) or CE(CEOG) chemistry data as provided in the 1998 NRC SER for BWRVIP-05.

| Group | CE(VIP) 64 EFPY (Table 2.6-5) | CE(CEOG) 64 EFPY (Table 2.6-5) | Hatch 1 End of PEO 54 EFPY (RR-38) (GE) | Hatch 1 End of PEO 49.3 EFPY (RAMA) |
|---|--|---|--|--|
| Cu% | 0.13 | 0.183 | 0.197 | 0.197 |
| Ni% | 0.71 | 0.704 | 0.060 | 0.060 |
| CF | 151.7 | 172.2 | 91.0 | 91.0 |
| Fluence (10¹⁹ n/cm²) | 0.40 | 0.40 | 0.236 | 0.296 |
| ΔRT_{NDT} (°F) | 113.2 | 128.5 | 48.5 | 53.3 |
| RT_{NDT(U)} (°F) | 0 | 0 | -10 | -10 |
| Mean RT_{NDT} (°F) | 113.2 | 128.5 | 38.5 | 43.3 |
| P(F/E) NRC | 1.99E-4 | 4.38E-4 | --- | --- |
| P(F/E) BWRVIP | --- | --- | --- | --- |