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

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
BOLTED CONNECTIONS CORRECTIVE ACTIONS RELIEF REQUEST
(NRR 970001)

South Carolina Electric and Gas Company (SCE&G), acting for itself and as agent for the South Carolina Public Service Authority, hereby submits the attached interim relief request as a supplement to its original relief request which was previously submitted on February 25, 1997. The subject of both submittals is to seek approval of an alternative to our current commitments associated with Section XI of the ASME Code as it pertains to the corrective actions prescribed by paragraph IWA-5250. These corrective actions direct the disposition of leaks found during the performance of a System Pressure Test and give specific instructions with regard to leaks at bolted connections. However, the ASME Code has now recognized the impracticability of the requirements for bolted connections and has approved Code Case N-566, "Corrective Actions for Leakage Identified at Bolted Connections", as an alternative.

The first submittal requested approval for the use of Code Case N-566 proper. But, after receiving a "Request for Additional Information" on that submittal, dated May 14,1997, and holding a conference call with NRC concerning SCE&G's proposed response to the Request for Additional Information on June 26,1997, it was agreed that SCE&G should submit a site specific, interim, relief request that is similar to the Code Case and that had been approved at other utilities. This interim relief request should be able to receive NRC approval in time for the upcoming outage (October 4, 1997). Please find attached an interim relief request that is modeled after Relief Request R15 at Oyster Creek Nuclear Generating Station, which was approved by a Safety Evaluation Report dated October 3, 1996 (TAC NO. M96399). SCE&G is requesting approval to use this relief request as an interim measure until Code Case N-566 is approved. This interim relief request will provide a partial benefit of the original relief request, and simultaneously allow continued NRC review for use of Code Case N-566. The interim relief request provides an NRC approved approach for addressing leaks at bolted connections while maintaining the assurance of structural integrity, which is the safety function of the ASME Code.

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NUCLEAR EXCELLENCE - A SUMMER TRADITION!

SCE&G is currently committed to comply with the 1989 Edition of ASME Code, Section XI except where deviations are either prescribed or allowed in accordance with 10CFR50.55a. IWA-5250(a)(2) of Section XI requires that any leakage detected at a bolted connection shall have the bolting removed and VT-3 visually examined for corrosion in accordance with IWA-3100.

Some of the problems associated with this requirement are summarized as follows:

1. IWA-3100 does not provide an acceptance standard for a VT-3 bolt inspection.
2. The requirement calls for bolt removal without regard to the size of the leakage.
3. The requirement increases the radiological dose to workers for leaks that are often not a challenge to operational or structural limits.
4. Bolts sometimes cannot be removed without damaging the bolt or cannot be removed due to component configuration.
5. It is not a requirement of the Code that the Owner must stop the leakage and inspection of the bolting is not necessarily going to stop leakage.
6. Removing one bolt at a time, if allowed by system conditions, may actually increase the leakage.
7. In many cases, implementation of the requirement would cause an unnecessary plant transient or delay startup.

In addition to the problems associated with the requirements of IWA-5250(a)(2), a Special Task Group of the ASME Committee has concluded that the Code does allow the acceptance of leakage by the analytical evaluation methods of IWB-3142.4, and that the actions required by IWA-5250 should not preclude this acceptance. Also, the Working Group-Pressure Testing concluded that the system integrity of a bolted connection is not necessarily compromised by leakage and recommended the approval of Code Case N-566.

Therefore, this interim relief request is more prescriptive and more conservative than Code Case N-566, it resolves some of the implementation problems associated with IWA-5250(a)(2) and is sufficient to assure structural integrity is maintained. Additionally, it eliminates some of the operational and radiological hardships of the current Code requirements.

Based on the discussion above, the details included with the attached relief request, and the fact that the NRC has approved similar relief requests for use at Oyster Creek, Zion, LaSalle, and other nuclear plants, it is SCE&G's position that we have shown adequate evidence that the interim relief request is an acceptable alternative to the

Code requirements and maintains the level of quality and safety as required in 10CFR50.55a (a)(3)(i). Therefore, SCE&G has met all the requirements of 10CFR50.55a necessary to allow the approval of the interim relief request as an alternate means of compliance with Section XI of the ASME Code.

Due to the date of our upcoming outage, October 4, 1997, and the desire to incorporate this relief request into the associated programs in time to provide site training, SCE&G requests the review and approval of this relief request be carried out as expeditiously as practical.

Should you have any questions, please call Mr. David Haile at (803) 345-4322.

Very Truly Yours,

Gary J. Taylor

DCH/JT/GJT/nkk

Attachment

c: J.L. Skolds
W.F. Conway
R.R. Mahan (w/o attachment)
R.J. White
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General Managers

NRC Resident Inspector
J.B. Knotts, Jr.
NSRC
RTS (NRR 970001)
File (810.19-2)
DMS (RC-97-0151)

Interim Relief Request from
IWA-5250(a)(2) Corrective Actions for Bolted Connections

Subject:

This relief request provides alternate corrective actions that may be used in lieu of the corrective actions associated with leakage at bolted connections as prescribed by IWA-5250.

Components:

Any Class 1, 2, or 3 bolted connection that has leakage identified in the course of an IWA-5000 pressure test.

Current Code Requirement:

Subparagraph IWA-5250 (a)(2) requires that the source of leakage detected during the conduct of a system pressure test shall be located and evaluated by the Owner for corrective measures. If leakage occurs at a bolted connection, the bolting shall be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100.

Alternative Requirement:

The source of all leakage at bolted connections detected by VT-2 examination during a system pressure test shall be evaluated to determine the susceptibility of the bolting to corrosion and potential failure. This evaluation will consider the following variables at a minimum:

1. Location of leakage
2. History of leakage
3. Fastener materials
4. Evidence of corrosion, with the connection assembled
5. Corrosiveness of the process fluid
6. History and studies of similar fastener material in a similar environment
7. Other components in the vicinity that may be degraded due to the leakage.

When the evaluation of the above variables is concluded and if the evaluation determines that the leaking condition has not degraded the fasteners, then no further action is necessary. However, reasonable attempts to stop the leakage shall be taken.

If the evaluation of the variables above indicates the need for further evaluation, or no evaluation is performed, then a bolt closest to the source of leakage shall be removed. The bolt will receive a VT-1 examination and be evaluated for corrosion in accordance with IWA-3100(a) and dispositioned in accordance with IWB-3140. If the leakage is identified when the bolted connection is in service, and the information in the

evaluation is supportive, the removal of the bolt for VT-1 examination may be deferred to the next refueling outage. When the removed bolting shows evidence of rejectable degradation, all remaining bolts shall be removed and receive a VT-1 examination and evaluation in accordance with IWB-3140.

Basis for Relief:

Some of the problems associated with the current requirements of IWA-5250 (a)(2) are summarized as follows:

1. IWA-3100 does not provide an acceptance standard for a VT-3 bolt inspection.
2. The requirement calls for bolt removal without regard to the size of the leakage.
3. The requirement increases the radiological dose to workers for leaks that are often not a challenge to operational nor structural limits.
4. Bolts sometimes cannot be removed without damaging the bolt or cannot be removed due to the component configuration.
5. It is not a requirement of the Code that the Owner must stop the leakage and inspection of the bolting is not necessarily going to stop the leak.
6. Removing one bolt at a time, if allowed by system conditions, may actually increase the leakage.
7. In many cases, implementation of the requirement would cause the plant an unnecessary transient or delay startup.

In addition to the problems associated with the requirements of IWA-5250(a)(2), a Special Task Group of the ASME Committee has concluded that the Code does allow the acceptance of leakage by the analytical evaluation methods of IWB-3142.4, and that the actions required by IWA-5250 should not preclude this acceptance. Also, the Working Group-Pressure Testing concluded that the system integrity of a bolted connection is not necessarily compromised by leakage and recommended the approval of Code Case N-566.

This interim relief request is more prescriptive and more conservative than the Code Case. It also addresses many of the implementation and radiological hardships associated with IWA-5250(a)(2) and yet maintains the conclusions of the ASME Committee by assuring that a proper evaluation of the connection and/or the bolting is performed. The joint evaluation must consider specific factors which, if indicative of degradation, must be dispositioned in accordance with IWB-3140 of Section XI. Due to the fact that this engineering evaluation is more comprehensive than the simple bolt inspection currently required by IWA-5250, coupled with the benefit that these alternative requirements ensure structural integrity is maintained, and reduce the operational, maintenance, and radiological hardships of the current requirements, this

relief request should be considered as an acceptable alternative in accordance with 10CFR50.55a (a)(3)(i). This conclusion is further supported by the fact that the ASME has approved Code Case N-566 and this interim relief request is essentially a conservative subset of the Code Case.