UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

MAY 28 1980

SSINS 6820

MEMORANDUM FOR: E. L. Jordan, Assistant Director for Technical Programs, Division of Reactor Operations Inspection, IE

FROM: Charles E. Murphy, Chief, Reactor Construction and Engineering Support Branch, RII

SUBJECT: PROPOSED REVISION TO IE BULLETIN 79-14 (AITS F02500130)b

During inspections and evaluations of IE Bulletin (IEB) 79-14 for Surry Nuclear Plant Units 1 and 2 and Turkey Point Power Plant Units 3 and 4, it appears that the Resistance Temperature Detector (RTD) line off the reactor loop was excessively overstressed, where in some cases the stresses were approaching the ultimate. Apparently, the reason for the overstressing for the particular lines is because Surry and Turkey Point were designed under ANSI B31. 1 Code. ANSI B31.1 did not have a breakdown of the different types of class of piping as defined in the more modern ASME Section III Code. Small bore piping at the time ANSI B31.1 was employed was analyzed by a simplified method using hand calculations. As times changed and ASME Section III was issued, a breakdown of class of piping was employed where they identified Class 1, 2 and 3 as safety related systems depending on the boundaries of the piping. Under ASME Section III all Class 1 piping above one inch in diameter of pipe is required to have a formal computerized stress analysis. Therefore, even-though at the time the RTD lines were analyzed, hand calculations were acceptable, they must now be dynamically analyzed by computer. Due to the commitments to reanalyze all lines for Surry and Turkey Point for IEB 79-14 this problem has emerged to be typical.

It is the recommendation of Region II that IE Bulletin 79-14 be revised to include small bore piping under 2-1/2 inches in diameter when the piping was analyzed by hand calculations per ANSI B31.1 and can now be classified as a Class 1 piping under the new ASME Section III guidelines.

Revision 1, paragraph 1 of IEB 79-14 under Action to be Taken by Licensee and Permit Holders states, "For older plants, where Category I requirements did not exist. . . utilizing piping 2-1/2 inches in diameter and greater, meets design requirements". This paragraph should be continued by adding ". . . and all safety related piping under 2-1/2 inches in diameter that were

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designed under ANSI B31.1 that would be categorized as Class 1 piping under ASME Section III which were originally hand calculated must be dynamically reanalyzed by computer".

C E Murphy

Charles E. Murphy, Chief
Reactor Construction and Engineering
Support Branch

cc: H. D. Thornburg, IE
RONS Branch Chiefs, RI, RIII, RIV, RV
RCES Branch Chiefs, RI, RIII, RIV, RV

FOLLOW UP
Woodruff

4/8

[redacted]

MODEMS SENDING MEMO & 79-14 REV

Turkey Point 3 —
overstress in 3 of 3
RTD Bypass lines —
1 & 2" — Range of
calc stress is 47 -
65 KSi — Acceptable is
40.8 — Ultimate is
75 — Adding
supports — Bechtel

~~Rob~~ Surry
~~Salem~~ has same
problem — S & W —
Ask Modems for
supplement to 79-14
for B 31.1 plants —

[redacted]

[redacted]

6/3/80

Ed,

As a result of the NRR reorganization, Steve Hosford and Bob LaGrange will no longer be working on evaluation of IEB 79-14 responses. Steve informed me this morning that Bob Bosnak now has the responsibility for this effort and will assign one of his people to this task. Until that is done, Bob will be my point of contact.

Roger

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7/23/81

ACTION

1. Determine whether NRC staff considers machine analysis of small dia Class I lines to be unnecessary.
2. If so, draft a memo to NRR describing following approach.
   a. Ask RII to identify Surry and Turkey Point RCP line designers.
   b. Ask VIB to inspect to determine which Class I lines in which plants were designed using the same technique.
   c. Require dynamic analysis of these lines

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Estrada, Tele, 7/29/80

1. Described our informal action plan of 7/23/80.
2. NRR accepts equivalent static analysis for lines $< 2\frac{1}{2}$ inches which are Class I.
3. He agrees with our action plan except that he would accept equiv static or dynamic analysis.
4. His expert is Mark Hartzman.