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September 26, 1990
HII-90-4466

Mr. James E. Richardson, Director
Division of Engineering Technology
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Richardson:

SUBJECT: Validity of Instrumented Inspection Technique (IIT)
as Practiced Under HAFA Topical Report 135 (P-A)

REFERENCE: Your letter, J.E. Richardson, Nuclear Regulatory Commission, to
F. Hess, H.A.F.A. International, Inc., with Enclosure - Safety
Evaluation, Implementation of HAFA Topical Report 135 (P-A), dated
June 6, 1990.

Your letter of June 6, 1990 states that "For the reasons set forth in the attachment, the staff concludes that the testing performed by H.A.F.A. was invalid...". H.A.F.A. disagrees with the staff's conclusion of invalidation for the following reasons.

HAFA has found the Enclosure to your letter to contain incorrect statements and partial excerpts from references that mislead the reader to form erroneous and negative conclusions regarding tests conducted to date under HAFA TR 135 (P-A). The most obvious of these is "In order to achieve the flow or mass balance stated in the topical report, ..." (Enclosure, p. 2). Flow or mass balance is not stated in the topical report. No text, no figures, and no test cases used for justification in the topical report mention or illustrate the use of the mass balance technique.

H.A.F.A. recognizes mass balance as a reasonable rationale to help locate and decide where to look for leaks, but it was not a requirement of HAFA Topical Report 135 (P-A) from 1985 until your letter of June 1990 (Transcript of February 1, 1990 meeting at the NRC, pp. 86-88). A recent publication (December 1989), referenced in Enclosure, p. 3, last para., illustrates the mass balance concept in a simple IIT test example. The paragraph following that example, in conjunction with its Figure 2, illustrates another IIT test example when mass balance is not used (selectively omitted in Enclosure). The NRC staff's generalization that "the IIT is again described as an inventory flow balance ..." is incomplete and inaccurate.

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Within the same paragraph (Enclosure, p. 3, last para.) the staff says, "This (the publication) further supports the staff position that IIT must use outlet flow measurements and acoustic leak detection at all boundary valves and intervals along the full length of the piping system that is being tested." No outlet flow measurement is shown at one boundary in Figure 2; only an acoustic sensor which is not quantitative and therefore not applicable to mass balance. Acoustic sensors are not illustrated along the full length of the piping system, and never were. The "staff position" may reflect their thinking today, but not the thinking of the staff in 1985 when the HAFA Topical Report 135 (P-A) was accepted. How can the NRC staff advocate mass balance, which requires accurate measurement of flow from all potential outlets in the systems approved for testing under HAFA Topical Report 135 (P-A), while advocating the use of acoustic sensors, which are qualitative? Is the relevance of referencing this recent publication that HAFA has exceeded the requirements as specified in the 1985 Topical Report 135 (P-A)?

In referring to acoustic leak detection, the staff says (Enclosure, p. 5, last three paragraphs), "... the necessity for written guidance regarding the acceptable background noise, the number of measurements, and the time interval between measurements has not been met." I find no reference to this requirement in the topical report. The NRC staff cites variability in background noise as the reason for "the necessity"; in that "... it is proper to assume the presence of variable background noise due to increasing flow turbulence and leakage as pressure increased." Does the staff realize that this increase in background noise is the basis of acoustic leak detection?

Numerous examples which appear to be of a self-serving nature exist in the Enclosure, including the rationale to accept the indiscretions of the staff. The staff's dissatisfaction with the NRC's evaluation performed in 1984-85 is apparent (Transcript, February 1, 1990, p. 110, line 19 through p. 111, line 4), and reflects negatively on the performance of the NRC. That should not reflect negatively on HAFA or its clients when following the practices acceptable to the NRC in 1985. I understand that the allegations related to the testing that H.A.F.A. performed were found to be either technically insignificant or unsubstantiated. This reflects negatively on those making the allegations, again not on H.A.F.A. or its clients.

Faced with 1990 plant operating problems, the staff's zealous desire to clarify and add new implementation and justifications in a revised topical report have obviously biased their evaluation (Enclosure) of the 1985 topical report, its justifications, its basis of evaluation in 1985 and its implementation. Your staff refers to ASTM E1211-87, which was first published in May 1988 and not available in 1985. A "small leak" in a PWR in 1985 was not the same "small leak" of concern in a BWR in 1990. The 1985 and 1990 staff viewpoints are significantly different as indicated during a meeting at the NRC on April 12, 1990 to discuss a revision to the topical report. The staff is guessing as to what the 1985 staff's understanding was (See transcript, February 1, 1990 meeting with HAFA, p. 89, lines 3-8); and Mr. George Johnson, who was HAFA's primary contact at the NRC and who was regularly kept informed of test activity and

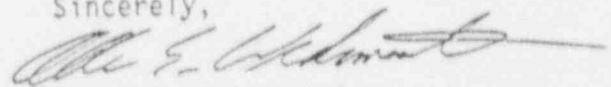
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invited to witness tests in the field, remains mute (Transcript of February 1, 1990, p. 2, line 9, p.11, line 9, p. 98, lines 11-15).

By contrast, HAFA has maintained and improved the practices discussed and accepted in 1984-85. As preparation for the February 1, 1990 meeting at the NRC, HAFA reviewed and summarized the results of over 140 tests, including those performed as justification and attached as Appendix I to the HAFA Topical Report 135 (P-A). The implementation of these, including those used to justify the topical report (Appendix I), are consistent with the explanation provided in the February 1, 1990 transcript, pp. 86-92. These pages include direct quotes from the topical report. In these and other tests, no cases have been disclosed to HAFA by its clients, by the NRC, or by other sources that through-wall leakage has been missed through implementation of IIT Leak Testing under the topical report. On the contrary, leakage detected has been confirmed, including unseen internal leakage. This successful track record is not indicative of an "invalid" test methodology.

H.A.F.A. requests that you reconsider your evaluation and recognize the validity of testing performed under HAFA Topical Report 135 (P-A). H.A.F.A. recognizes the NRC staff's present concerns with the topical report (Transcript, p. 110, lines 19-23), and takes no exception to rescinding your approval of the topical report.

Sincerely,



Allen E. Wehrmeister
Vice President, Engineering

AEW/er

Enclosure: Referenced letter w/ Enclosure, Safety Evaluation

cc: w/ attachment

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