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September 19, 1996

Mr. Rob Elliott
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Agency
One White Flint North
Rockville, MD 20852-2738

Subject: **Scheduled Air Jet Impact Tests on NUKON® Insulation at CEESI**

Dear Rob,

Earlier this week I spoke to Mike Marshall about our upcoming Air Jet Impact Tests on NUKON® Insulation. These are scheduled for October 2 and 3 at the Colorado Engineering Experiment Station, Inc. Mike told me that you would be interested in coming to CEESI to witness these tests. Therefore, I have copied you with a September 17 letter to Mr. Roger Schaeffer of CEESI on this subject. This letter gives a general description of the tests which PCI plans to run. The enclosed PCI internal memo, *Air Jet Impact Tests on NUKON Insulation Supported with Sure-Hold™ Bands and with Sure-Hold Latches and Strikes*, gives more detail. This is accompanied by a couple of other procedures:

- *Installation Procedures for PCI's Sure-Hold Bands to Provide Post-LOCA Protection with Metal Jacketed NUKON insulation, and*
- *Installation Procedures - Piping.*

The first of these is a first draft of a proposed new section for inclusion in our NUKON Insulation Installation Manual; the second is currently part of this manual. Together, these describe in detail how we plan to install the NUKON blankets and jacketing and the Sure-Hold Bands.

I have asked Mr. Schaeffer to schedule the first test in the late morning on October 2. CEESI may or may not be able to get all four tests run in that one day. For that reason, we have included October 3 in the schedule but may not need it.

If you have any questions about how we plan to run these tests, please give me a call.

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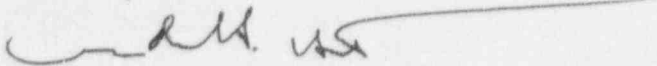
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**Letter from Gordon H. Hart of PCI to Rob Elliott of the USNRC on Scheduled
Air Jet Impact Tests on NUKON® Insulation at CEESI**

09/19/96

Sincerely,

A handwritten signature in dark ink, appearing to read 'G. Hart', followed by a long horizontal line extending to the right.

Gordon H. Hart, P.E.
Technical Services Manager

CC: J. Bleigh
G. Pinsky
P. Dwyer

To: Technical Memo for Record

From: Gordon Hart

Subject: **Air Jet Impact Tests on NUKON Insulation
Supported With Sure-Hold™ Bands and
with Sure-Hold Latches and Strikes**

Date: September 18, 1996

CC: G. Pinsky
J. Bleigh
G. Hunter
P. Dwyer
J. Jacobs
J. Munchausen

On October 2 and 3, PCI will be conducting some additional Air Jet Impact Tests on NUKON Insulation at the Colorado Engineering Experiment Station, Inc. These will include NUKON metal jacketing for all tests. However, two of the tests will make use of Sure-Hold Bands (as described in my August 16, 1996 Memo for Record) installed over standard NUKON metal jacketing and the second two will make use of NUKON metal jacketing modified with the heavy duty Sure-Hold latches and strikes replacing standard NUKON latches and strikes (i.e., without the use of bands). The purpose of these tests is to find other solutions to the problem of protecting metal jacketed NUKON blankets from the damaging effects of a simulated high pressure pipe break LOCA. Details of the tests follow.

Test 1: We will use the NUKON materials left at CEESI from the August tests conducted by the BWROG. These should include four NUKON blankets, each 20" wide and three sections of metal jacketing, each 30" wide (giving an effective width of 27"). The jacketing will be installed, with Sure-Hold Bands, as specified in the attached *Installation Procedures for PCI's Sure-Hold Bands to Provide Post-LOCA Protection with Metal Jacketed NUKON Insulation*. This includes three (3) bands per metal jacket section, with the latches and strikes facing at "3 o'clock", or towards the air jet nozzle.

Test 2: New NUKON materials will be used, fabricated especially for this series of tests. The blankets and metal jacketing will be of a standard NUKON construction. There will be four (4) NUKON blankets, each 22.5" wide. These will be covered by standard NUKON metal jacketing; two sections will be 36" wide each and the third will be 27" wide, giving the three the ability to effectively cover 90" of pipe length. First, the shorter 27" wide section of jacketing will be installed, followed by the next two, in a standard manner. However, only two (2) Sure-Hold Bands will be used on each section of metal jacketing to determine whether two, instead

of three, bands are sufficient to hold the metal jacketing on the pipe and thereby protect the NUKON blankets. The two bands should be installed just to the inside of the outer latch and strike combinations that are attached to each jacketing section.

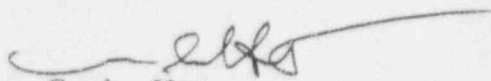
Test 3: The NUKON blanket and jacketing widths are exactly as in Test 2 above.

However, there will be no Sure-Hold Bands used in this test since the heavy duty latches and strikes, used in the Sure-Hold Bands, will have already been riveted to the jacketing (with backer plates for additional reinforcement). First, the shorter 27" wide section of jacketing will be installed, followed by the next two, in a standard manner. The purpose of this test is to determine whether new NUKON jacketing scopes, which use the heavy duty Sure-Hold latches and strikes but do not use banding, can effectively hold the otherwise standard metal jacketing in place and thereby protect the NUKON blankets.

Test 4: The NUKON blankets and jacketing designs will be exactly as in Test 3 above.

However, if the latches and strikes become detached during the air jet blast in Test 3, it may have been due to vibration or twisting of the jacketing in the overlap region. If that was the case, then it will probably be able to be solved by adding one Sure-Hold Band over each jacket to jacket overlap. If Test 3 was a success, however, Test 4 should be unnecessary.

I have asked the staff at CEESI to weigh the small generated fibrous debris after each test. However, if the jacketing is blown off the pipe and the unprotected NUKON blankets are extensively damaged, then the test will be considered a failure and the fibrous debris will simply be cleaned up without a weighing.



Gordon Hart