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IN 90-07  
January 30, 1990  
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POWER AND PROCESS DIVISION 4025 BONNER INDUSTRIAL DRIVE, SHAWNEE, KANSAS 66226 (913) 441-0100

October 19, 1989

Dr. Thomas E. Murley  
Director of the Office of Nuclear Reactor Reg.  
United States Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Notification of New Technical Information on Nuclear Power  
Plant Insulation

Dr. Murley,

I wish to notify the U.S.N.R.C. about some new technical information that could have a bearing on nuclear safety. The information has a potential impact on long-term containment cooling following a loss-of-coolant accident. The NRC investigated this issue thoroughly in the early 80's as Unresolved Safety Issue A-43. Eventually, a new Regulatory Guide 1.82, Revision 1 was issued in late 1985. In the testing and analysis, the NRC only considered short-term effects with room temperature, chemically neutral cooling water on thermal insulation is as much as it might contribute to restricting the flow of cooling water through the emergency sump screens. Performance Contracting, Inc. (previously a division of Owens-Corning Fiberglas Corporation) also had tests performed on our NUKON product, a thermal insulation system for hot service piping and equipment in nuclear containments. Our tests were conducted by the exact same procedures, and at the same testing lab, as those conducted for the NRC. The NRC accepted our test data and included it in NUREG-0897.

Recently, a customer of ours in Europe, who owns and operates a PWR of a Westinghouse design, asked us about the long-term effects of hot, alkaline cooling water on the head loss across our NUKON insulation debris. The electric utility defined "long-term" as one day to 30 days in duration. We advised our customer that, based on our knowledge of the LOCA phenomenon, 24 hours should be more than long enough since a reactor core would be cooled well below its melting temperature in that time. Nevertheless, our customer insisted on tests, so we contracted the same testing laboratory to conduct tests with hot, alkaline water for up to 7 days. The test results show that the head loss increases significantly after about 24 hours. If one is to assume full cooling water flow rate for 7 days following a LOCA, the new data could give a different result in a Reg. Guide 1.82, Rev. 1 sump analysis. A second set of tests with hot, chemically neutral water, which would be the case for a BWR following an accident, showed no such increase in head loss.

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U.S.N.R.C.

Performance Contracting, Inc. would welcome the opportunity to meet with the NRC to discuss this issue and to present our new test data. We do not believe that this testing reflects any defect in our product or non-compliance with any of our customers' specifications. However, because of the potential impact on nuclear power plant safety, we believe it is our responsibility to bring our findings to your attention.

I look forward to meeting with you.

Sincerely,



Gordon H. Hart  
Manager, Technical Service

GH/mpg

cc: T. Carlisle  
G. Pinsky  
K. Spraezt