



Science Applications, Inc.

February 15, 1983

Mr. Mel Silberberg
U. S. Nuclear Regulatory Commission
1717 H Street, N. W.
Washington, D. C. 20555

Dear Mr. Silberberg:

Thank you for inviting me to participate in the Peer Review of NUREG-0956. The area that I feel most qualified to comment on is the behavior of radio-iodine in containment. I have also been involved with measurements and analysis at TMI-2. Specific comments are the following:

1. From the PRA point of view, it is doubtful that volatile iodine species would be a major contributor to risk. However, they should not be ignored as was suggested by some at the Review, because these source terms are used for accident planning and equipment qualifications.
2. It seems to me a matter of faith that all iodine in CsI will remain in the ionic form. A fraction will be converted to volatile forms. The fraction 0.05% (page 6-31) may be correct. At least it has some basis in measurements. Contrary to the belief expressed on page 6-31 there is a model available to estimate volatile species from one source at least. It is the model used in reference 6.7, which is our analysis for DOE of iodine behavior at TMI-2. The analysis is based on iodine being dissolved in the condensation layer and subsequently transferred to building surfaces using empirically determined transferred coefficients. The iodine is then converted by surface reactions to volatile forms. The best description of the conversion process is that on page 492 of the U. K. report, "PWR degraded core analysis", ND-R-610(s) April 1982.
3. The origin of the value of the generation rate for "volatile iodides" is not clear. Based on our experience, a rate of 2×10^{-7} fraction/hour given on page 6-31. The value determined from TMI-2 measurements is 6.8×10^{-9} sec^{-1} . The inventory on which this rate constant operates is a function of the quantity which is assumed to be made airborne during the accident. The smaller the amount made airborne the smaller the inventory involved in generating volatile iodine.
4. Dave Campbell of ORNL suggested that tellurium had been measured in sump samples at TMI-2. I was unaware of any reliable measurements of tellurium in the sump but it had been some time since I'd seen any data from TMI. However,

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the day after the Review, I had occasion to be at TMI, and asked several persons in a position to know about such measurements. They are unaware of any such results.

In conclusion I would like to add my vote to those who want to see an analysis made of the accident at TMI. The data from the accident are not the best, but if used properly should provide some verification of the models.

Sincerely,

SCIENCE APPLICATIONS, INC.

Charles A. Pelletier

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CAP:vr

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