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To: Committee Members  
Steam Explosion Experts Group

From: Michael Corradini  
Assistant Committee Chairman

Mr. C. Allen of NRR and T. Ginsberg, the Committee Chairman, have requested that I compile a list of meetings and open publications where the Sandia steam explosion work has been reviewed and/or analyzed by other investigators in regard to direct containment failure (i.e. 'alpha-mode' failure). I have compiled an initial list of documents which are described in Enclosure 1. This is by no means a complete list of steam explosion phenomena, rather it is meant to be a list of only those documents analyzing and/or utilizing Sandia steam explosion research work in regard to alpha-mode failure.

I request that all committee members review this compilation and the attached documents to check for completeness and to familiarize themselves with past investigations. If certain pertinent documents have been inadvertently omitted from this compilation, it is the duty of the committee member to inform me or Mr. Allen or Ginsberg and to personally distribute the documents to the rest of the committee members. In this way all members will be furnished with complete and up-to-date information.

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Enclosure 1

Past Critical Reviews of the Sandia Steam Explosion Work

- I. Meeting Reviews (see attached documents)
  - A. Zion/Indian Point Risk Studies Review Meeting, April 1982
  - B. Technical Review Meeting on Steam Explosions, May 1982
  - C. Molten-Core-Coolant Interaction Research Review Group, June 1984
- II. Bibliography of Important Past Reviews of Sandia Experiments and alpha-mode failure
- III. Key Papers on the Critical Review of Sandia Experiments and alpha-mode failure (see attached documents)

## II. Bibliography

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3. S.G. Bankoff et al., "A Model for Fragmentation of Molten Metal Oxides in Contact with Water," Int'l. Mtg. on LWR Severe Accident Evaluation, Cambridge, MA (August 1983).
4. M.J. Bird, "Thermal Interactions Between  $UO_2$  and Water: Experimental Study Using Thermite-Generated  $UO_2$ ," Fuel-Coolant Interactions, HTD-V19, ASME Winter Annual Mtg., Wash. DC (November 1981).
5. M.J. Bird, "An Experimental Study of Scaling in Core Melt/Water Interactions," ASME 22nd NHTC, No. 84-HT-7, Niagara Falls, NY (August 1984).
6. C. Carachalios et al., "A Transient Two-Phase Model to Describe Thermal Detonation Based on Hydrodynamic Fragmentation," Int'l. Mtg. on LWR Severe Accident Evaluation, Cambridge, MA (August 1983).
7. D.H. Cho et al., "Some Aspects of Mixing in a Large-Mass Energetic FCI," Int'l. Mtg. on FRS, CONF-761001, V4, Chicago, IL (October 1976).
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9. M.L. Corradini, "Phenomenological Modelling of the Triggering Phase of Small Scale Steam Explosion Experiments," Nuclear Science and Engineering, 78, 154 (1981).
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13. M.L. Corradini, D.V. Swenson, R.L. Woodfin, "An Analysis of Containment Failure by a Steam Explosion Following a Postulated Core Meltdown Accident in an LWR," Nuclear Safety, 23(1), 21 (1982).
14. M.L. Corradini, "Analysis and Modelling of Large Scale Steam Explosion Experiments," Nuclear Science and Engineering, 82 (December 1982).

15. M.L. Corradini, "Modelling Film Boiling Destabilization Due to a Pressure Shock Arrival," Nuclear Science and Engineering, 84 (1983).
16. M.L. Corradini, G.A. Moses, "A Dynamic Model for Fuel-Coolant Mixing," Int'l. Mtg. on Severe Accident Evaluation, Cambridge, MA (August 1983).
17. M.L. Corradini, N.A. Evans, D.E. Mitchell, "Hydrogen Generation During Fuel-Coolant Interactions," Int'l. Mtg. on Severe Accident Evaluation, Cambridge, MA (August 1983).
18. M.L. Corrdini, "Fuel-Coolant Interactions with Molten Core Materials and Water," Nuclear Science and Engineering 86 (1984).
19. M.L. Corradini, "Limits to Fuel-Coolant Mixing," Nuclear Science and Engineering (submitted May 1984).
20. H.K. Fauske, R.E. Henry, "Interpretation of Large Scale Vapor Explosion Experiments with Application to LWR Accidents," Int'l. Mtg. on LWR Severe Accident Evaluation, Cambridge, MA (August 1983).
21. R.E. Henry, H.K. Fauske, "Core Melt Progression and the Attainment of a Permanently Coolable State," Proc. Thermal Reactor Fuels Mtg., Sun Valley, ID (August 1981).
22. R.E. Henry, H.K. Fauske, "Required Initial Conditions for Energetic Vapor Explosions," Fuel-Coolant Interactions HTD-V19, ASME Winter Annual Meeting, Wash. DC (November 1981).
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24. W. Schwalke et al., "Investigations on Shock Waves in Large Scale Vapor Explosions," Fuel-Coolant Interactions, HTD-V19, ASME Winter Annual Meeting, Wash. DC (November 1981).
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