



APR 22 1980

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MEMORANDUM FOR: G. Quittschreiber, ACRS
FROM: C. Kelber, RSK
SUBJECT: INPUT TO RESPONSE TO COMMISSIONER GILINSKY'S
QUESTIONS ON CORE MELT

Pursuant to your memo of April 18, 1980 I have called Dr. Okrent to relay these thoughts:

1. The Zion/Indian Point study emphasizes the need to review the systems interactions of containment systems taking into account the probable state of the core and coolant systems at and following the time the threat to containment arises. From this review a risk based balance of the effects of system failures should be used as a major factor in deciding what systems to put in place.
2. Once a risk based balance is accepted as part of the decision system, many options are available to resolve the questions. Options include, for example, filtered, vented containment systems, highly reliable power and water supplies for containment cooling, active and passive core catchers, either sacrificial or refractory, or strong containments that are externally coolable, as the Byblis B plant.
3. Another factor in the decision process is the political factor: an inadvertent release of all the nobles through a filtered vented containment system is without health effects, but a deliberate release is probably politically impossible to permit at this time. Thus, such a system might be without merit in the next few years simply because permission to use a filtered vented containment system would probably be denied if it were ever requested in advance.
4. The Zion/Indian Point study revealed these problems to be most troublesome:

The steam spike arising from sudden mixing of a molten core with water. Sprays or an ice condenser will ameliorate this problem if they are available. The trouble with a passive system such as the ice condenser is that it will probably be used up by the time the steam spike arises.

The pressure from a massive hydrogen burn. Satisfactory hydrogen control methods appear to be available, but, of course, they have to be used.

If the molten core is not cooled rapidly, radiation from the core may cause failure of massive components such as the pressure vessel, and such failures might lead to extensive damage to neighboring systems.

5. It is likely to be necessary to by-pass the containment through the let down line or similar systems to maintain vital plant functions. The release through such bypasses does not appear to be substantial.



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cc: T. Murley, RSR
D. Okrent