



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

H. Bloch

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Note to E. J. Bloch
E. G. Case
P. A. Morris

The decision in Item 5.b of this draft Task Force report was not fully discussed in the meeting, which was in any case poorly attended. Please let me know if you concur; if not, we will have to discuss it further and reach a decision.

[Handwritten signature]
S. H. Hanauer

Enclosure:
Draft Task Force Review

*No let me know
your comments
(True)*

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TASK FORCE REVIEW
BYPASS EFFECTS IN GE PRESSURE SUPPRESSION CONTAINMENTS
NOVEMBER 9, 1971

SUBJECT; DISCUSSION

DECISIONS

1. Definition: Bypass means a path from drywell to wetwell air space without passing through the water of the suppression pool and therefore without condensing the steam.

2. Consequences
 - a) Large LOCA - no problem.

 - b) Small LOCA - slow pressure buildup in drywell, bypass lets wetwell pressure follow without condensing steam. This trouble comes on slowly, but if the primary leak widens and the LOCA severity increases (the advertised course of events for a big leak - starts small) then the big

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blowdown pressure will build on the existing pressure built up slowly, and the containment would overpressurize. That could lose the torus water source, hence ECCS, as well as leak out fission products.

3. Probability

a) Small primary leak rather probable - already had one slow blowdown (Dresden 2). Another (Monticello) blowdown occurred through the bypass valve, then through a safety valve. A large leak is improbable, but is supposed to be a small one first.

b) GE claims two passive failures are required for trouble, but any malfunction of 12 vacuum

b) The GE position that this is too improbable to worry about is rejected.

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relief valves, not easily inspected in the torus, over 40 years will set up half the accident, ready for trouble if a steam leak occurs.

c) Only a limited range of leak sizes gets into trouble. Large leaks clear the vents regardless of any reasonable postulated bypass. Very small leaks are condensed on the drywell wall. The attached GE curve submitted for Hatch 2 has not been reviewed very much by REG, shows some trouble 0.05 - 0.5 ft.² Other GE containments (smaller or over/under with deeper vents, or other parameters different) have problems not yet calculated and, in some cases, worse than Hatch.

c) Further study is required for this and other configurations, including sensitivity and assumption variations.

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4. Cures

- a) Containment spray (particularly torus air space spray) would condense the steam and decrease the pressure, but at enormous cost (ruin equipment in drywell, maybe have to retire reactor). In present designs, containment spray water is diverted from the LPCIS, thus from ECCS.
- b) Inservice inspection of potential bypass leakage: corrosion, cracks in vent pipes, malfunctioning valves. The Hatch applicant offers an elaborate scheme to indicate the positions of the valves using redundant devices, and to allow remote testing of the valves, but nothing in the way of inspection.
- a) This should be studied further. We cannot expect an operator of the graveyard shift to sort out the pros and cons of turning on the containment spray, thus ruining his reactor, to cope with a transient he only dimly understands.
- b) Check the valve stuff carefully to make sure it doesn't increase (too much) the probability of failure. Push for adequate inspection of valves and pipes.

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5. Application

- a) The problem is germane to all past and present GE pressure-suppression containments. About 40 such are already approved. Hatch-2 CP is the next ACRS review.
- a) Starting with Hatch-2, get a commitment to study and fix the problem in whatever way is found. For back-fitting, wait until fixes are studied and problem is scoped.
- b) GE wants us and ACRS not to mention the problem publicly. They are afraid of delaying hearings in progress.
- b) All safety evaluations issued from now on for plants affected will have to 'fess up. Hearings for CP should be satisfied with a suitable commitment; if they're not, maybe that's a suitable spur to GE to resolve the problem. In any event, there is probably trouble for Vermont Yankee and Pilgrim hearings; it will have to

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faced and a real solution found. All GE pressure suppression cases in hearing will soon have to get letters from REG about the problem; better that they hear from us than from an ACRS letter on another case.

*Note added later: The Hatch 2 CP ACRS letter does not mention the problem, thus giving us a little more time. The subject is discussed in the publicly available Hatch-2 docket as an answer to a DRL question.

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