

Arnold Gundersen

Free Lance, P.O. Box 2474, New Preston, CT 06777
telephone (860) 868-9310 - fax/phone ((860) 868-0424

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MEMO

2 pages sent via fax (717) 232-6802

Attorney Work Product

TO: Lee Swartz

FROM: Arnie Gundersen

Subject: Post Accident Containment Leakage

In reviewing the report of Dr. Sinovy V. Reytblatt on containment leakage at TMI, it is obvious that the containment system failed. In the report, prepared December 17, 1995 as part of the TMI litigation punitive damages portion of the case, Dr. Reytblatt concluded "... that a plausible release of up to 8 to 12 percent of volatiles may have occurred due to the unavailability of the containment system at the time of (sic) accident." (p.19)

Dr. Reytblatt used a containment pressure versus time curve to support his conclusion. The containment pressure versus time curve showed that the containment was at 2 to 4 pounds of positive pressure until a hydrogen detonation occurred at approximately 1:55 PM. Pressure rapidly decayed after hitting a peak of at least 28 pounds per square inch gauge (PSIG). Dr. Reytblatt's analysis included leakage before and after the detonation.

I concur with Dr. Reytblatt's analysis and conclusion. I also believe it is important to document the other operating data from the plant that indicated leakage of radioactivity after the hydrogen detonation.

Specifically:

1. Exhibit B, Figure 2.27 of the Report by John A. Daniel showed that an area radiation monitor (HP-R-234) located in the Service Building Access Corridor recorded a five-fold increase in radiation. This five-fold increase in radiation occurred at precisely the same time as the detonation and followed four-hours of consistently decreasing radiation levels.
2. Figure 3.2 of Daniel's review of Webb's analysis showed that the strip chart for radiation monitor (HP-R-3240) failed shortly before 2PM and started operating with off-scale readings at approximately 3PM. Radiation levels

increased by at least a factor of 10 during this one-hour time span.

Webb thought that this may have been due to the blowout but the fact that it occurred simultaneously with the containment spike makes it more likely that this 10-fold increase in radiation is due to a containment breach. Blowout occurred after 3PM.

3. Daniel's Figure 2.2 for the Letdown Process Monitor (MU-R-720H) in the Auxiliary Building showed an increase from 40,000 Counts Per Minute (CPM) at 2PM to 85,000 CPM at 3PM. It should be noted that this particular monitor was shielded by four-inches of lead and most of the radiation was extremely weak Gammas and Betas. Considering the amount of shielding around this monitor, a two-fold increase in radiation after detonation is very significant.
4. Since all effluent monitors were already off-scale prior to the detonation, they cannot be relied upon to corroborate or deny the theory that the containment was leaking.

The simultaneous increase in these three radiation monitors at the same time as the hydrogen detonation corroborates that the containment leakage increased dramatically after detonation. This substantiates Dr. Rytblatt's non-linear leakage hypotheses.

Estimates of the radioactivity inside the containment vary and I do not know if the Plaintiff has an agreed upon value. However, Figure 4.4 of Daniel's Report indicated that 56.2 percent of only XE-133 was released to the containment. Daniel also indicated that 154 million curies were available. Using Daniel's values, this indicates that 86.5 million curies of only XE 133 were in the containment. Referring to the midpoint of Dr. Rytblatt's leak rates (8 to 12 percent) of 10 percent indicates that 8.6 Million Curies of XE-133 were released from the containment.

Figure 4.2 of Daniel's report indicated that the total fission products released from the fuel to the containment were approximately 130,000,000 (130 Million) Curies inside the containment at noon on the day of the accident. Again using Dr. Rytblatt's midpoint leakage, it is indicated that 13,000,000 (13 Million) total Curies escaped into the environment.

Clearly, containment leakage was a significant contributor to offsite exposures on the day of the accident and is easily quantifiable. Additionally there are numerous other potential release paths, like the steam generators, the make-up tank, waste gas decay tanks, leakage from the waste gas header, and a failed rupture disk on an auxiliary building sump tank.

Please advise me as how you wish to proceed to make sure this information is entered into the court record.