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BUTLER,W.R. Project Directorate I-2

SUBJECT: Advises that final rept on work w/alternative CO2 testing will be provided by 900416.

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FEB 28 1990

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SUSQUEHANNA STEAM ELECTRIC STATION
FIRE PROTECTION - ALTERNATE CO2 TESTING
PLA-3351 FILES A17-15, A20-1, R41-2

Docket Nos. 50-387
and 50-388

Dear Dr. Butler:

On October 25, 1989, we met with members of your staff to discuss Unresolved Item 89-09-01 and the use of alternatives to full discharge test to verify operability of plant automatic CO2 systems covered by Technical Specifications. To date fan and SF6 testing have been completed for each of the rooms in the plant protected by an automatic CO2 system covered by Technical Specifications. Additionally, CO2 full discharge testing (benchmark testing) was conducted at the Factory Mutual Test Facility from the 5th of February through the 9th of February.

The intent of the benchmark testing was to verify and validate the methodology for utilization of the fan and SF6 tests as an alternative to full discharge testing. The benchmark test confirmed the ability of the fan and SF6 tests to measure openings and our methodology to predict peak pressure. It also demonstrated additional phenomena which resulted in the actual retention times being much longer than those predicted by our calculations based solely on the NFPA 12A Halon model. We are in the process of analyzing the benchmark test data to develop an engineering calculation which captures the observed phenomena. Preliminarily it appears that CO2 concentrations during and after a system discharge are dependent on vaporization and expansion rates.

Because of the complexity of the analytical work before us, we will be unable to develop a final report on our work with alternative CO2 testing by the committed date of March 1, 1990. We will provide our report no later than April 16, 1990.

Very truly yours,

H. W. Keiser

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cc: NRC Document Control Desk (original)
NRC Region I
Mr. G.S. Barber, NRC Sr. Resident Inspector
Mr. M.C. Thadani, NRC Project Manager