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March 3, 1971



AIR MAIL

Mr. Ray G. Smith  
Special Assistant to the Director  
for Standards and Guides  
Division of Reactor Standards  
U.S. Atomic Energy Commission  
Washington, D.C. 20545

Dear Mr. Smith:

I have reviewed the amended air intake protective devices system for the Three Mile Island Nuclear Station, Unit No. 1, and I find my confidence in the design has increased considerably. While I cannot assess the effectiveness of the water deluge and Halon distribution arrangements, I assume that the proposal uses existing criteria for effective application. With regard to the Halon distribution system, I would recommend that the quantity of Halon agent in each zone be adequate to render the total air intake tunnel volume safe from fire. Since no mention is made of the quantities of Halon agent in each zone, I assume that the intended quantity is enough to raise the concentration of Halon gas to the 5% level for effective extinguishment in a volume equal to that of the zone only. I am afraid that such a criterion would be marginal since the Halon discharged in one zone would flow into the adjacent zones and decrease the Halon concentration below the effective value.

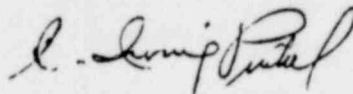
I would recommend, also, that a test be required when the installation is finalized to be assured that the timing of the actuation of the components is according to the design philosophy. Such a test can be made with pans of aviation fuel distributed along the tunnel and ignited to simulate a fuel fire in the air intake. The quantity of fuel can be small enough to be safe within the structure of the tunnel, yet provide a continuous path for fire propagation along the tunnel. A narrow pan extending the length of the tunnel measuring 1 foot in width and 4 inches in depth should be adequate. This can be made in sections which contact each other to provide a continuous combustible path. Two inches of water should lie in the bottom of the pan and a 1 inch layer of JP-4

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fuel floated on the water. Extinguishing system response time, the adequacy of the Halon and water deluge rate of flow, and the total quantity of Halon and water for effective extinguishment should be observed. The water deluge should have sufficient capacity to prevent re-flash of the fire.

The protection arrangements that are now planned represent an enormous improvement over the first concepts which were described two years ago. I congratulate the AEC for diligence in this matter.

Sincerely yours,



I. Irving Pinkel  
Director of Aerospace Safety  
Research and Data Institute

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