PP&L Pennsylvania Power & Light Company
Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
215/770-7501

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Director of Nuclear Reactor Regulation
Attention: Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
ADDITIONAL INFORMATION REGARDING THE
PROPOSED TRANSCO PIPELINE
ER 100450 FILE 841-2 Docket Nos. 50-387
PLA-1738 50-388

Dear Mr. Schwencer:

In response to your letter dated June 28, 1983, the following is Pennsylvania Power & Light Company's assessment of the possible consequences due to either the immediate or delayed gas cloud ignition resulting from a rupture of the proposed 42" Transco pipeline.

The heat flux associated with either immediate or delayed gas cloud ignition resulting from a rupture of the proposed 42" Transco pipeline does not pose a safety concern to Susquehanna Steam Electric Station.

In PP&L's response to NRC Question 311.1 (letter from N. W. Curtis to A. Schwencer dated January 21, 1982), we discussed the effects of gas cloud ignition with respect to the PG&W gas pipeline.

Considering immediate ignition, the PG&W line is only 500 feet from the nearest plant building and the gasline presents a direct line of sight exposure. While larger gas quantities could escape from the 42 inch line, the magnitude of the exposing flame is still limited to the portion of the gas cloud which is in the combustible range.

Since heat effects are inversely related to the square of distance, the greater distance (1.4 miles vs 500 feet) and the topography which blocks the line of site exposure more than compensates for a possible increase in fire size.

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The PG&W pipeline analysis assumed, in the case of delayed ignition, that a constant flame temperature of 2000°F was in contact with the beams at the top elevation of the Unit 1 and 2 Reactor Buildings. It was predicted that the burn time of the gas cloud was an order of magnitude less than the exposure time required for the beams to reach 1000°F.

The portion of the gas cloud affecting the Reactor Building steel structure would, in all cases, be limited to the portion of the gas cloud which is within the flammable range and in proximity to the building. Therefore, the burn times are relatively independent of the gas quantity released. Also, PG&W gas cloud was not assumed to clear the Reactor Building roofs. Due to the larger quantity of gas required to reach the plant site, the gas cloud from the Transco line is predicted to clear the Reactor Building roof by a large margin (greater than 100 feet). This removes the direct conduction heat transfer and only radiant heat transfer remains.

Therefore, we conclude that the proposed 42 inch Transco pipeline presents a less severe exposure to Susquehanna Steam Electric Station than was analyzed for the PG&W gas pipeline.

If you have any additional questions, please contact us.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

cc: R. L. Perch - NRC