U.S. NUCLEAR REGULATORY COMMISSION ..... ATOMIC SAFETY AND LICENSING BOARD
RE: Phila Electric Co. Limerick Gen.Sta. Units 1 & 2 Docket # 50- 352,353

R.L.ANTHONY/FOE REBUTTAL OF APPLICANT'S REPLY FINDINGS,5/18/84, ON CONTENTIONS V-3a AND V - 3b.

June 6,1984

PECo's and Staff's findings. We are not responding individually to the NRC Staff's findings as they appear to be practically identical to PECo's. We believe that our responses to PECo's " insertions" detailed below also apply equally to the Staff's findings.

Response to PECo insertion 8A. No evidence was presented to show that Mr.Benkert's "considerable experience with nuclear power plants" ever was directly connected with the design of Limerick safety related structures. He flatly denied selecting the drawings to demonstrate the design to withstand outside explosions or making any calculations. 8395-19 & 23.,8397-10,11.

Even had Mr.Benkert certified the designs,he was not permitted to say whether he had any knowledge that the safety related structures had been build according to these plans or that any had been completed. We raise again the question as to whether the Board can evaluate the structures' ability to withstand explosions, lacking assurance that these structures are built to the designs,and completed. 8396-11.

Insertion 9A. The Staff witnesses were handicapped because they had never been at the site ,by lack of knowing the orientation of Possum Hollow Run and the railroad to the plant. The vulnerability of the reactor building louvre had to be pointed out to them,for example. And Dr.Campe acknowledged all the ARCO fuel in the"Run"could be dammed for three hours without any escape to the Schuylkill,7524-7558. He could have estimated,without our questioning,the additional capacity of the flood plain in the "Run" as ample to contain more than three hours fuel flow,since he came up with a figure of 500,000 cu.ft. 7541-8,had he seen the site.

-9B . Dr.Kuo and Mr. Romney were not able to testify as to the margins to resist blast overpressures without knowing that the structures had been completed as shown in the plans. Without a first hand view they could not testify even whether the structures had been started,much less completed in a way to be able to withstand.

- 11A. C.Ferrell in his testimony on the pipelines feferred to the "CP stage" report and the lack of any consideration of pipelines. If this safety issue had been considered,the plant construction might have waited for its resolution.

Page 9,Par.17 Contrary to this insertion Mr.Christman did testify that the ARCO pumps could fail to shut down automatically in case of a break that was not a complete one. 5175-15 to 5175-4. The Board's concern for " requirements for safety grade equipment" in connection with an accident is stated in 5085-10 to 16.

- 28 A. The railroad embankment is abutted by a PECo roadway across the"Run" which

EXHIBIT A

is not shown on the site map. If Mr.Campe had visited the site he would have observed this.It is another example of the discrepancy between drawings and "as built"conditions by PECo,but this did not get into the record.

It is not true that evaporation area would not be increased by a blockage. Dr.Campe stated that a three-hour damming would raise the level in the "Run" "a fraction of a foot". 7536-16. He also estimated this area could contain 500,000 cu.ft.of fuel. 7541-8. Thus 500,000 sq.ft. x 1 ft. means a surface for evaporation of at least the 500,000 sq.ft. since he estimated a depth of "a fraction of a foot" for a three-hour damming. See # 9A above.

41.A. The overpressure of 24 psi was based on a conversion factor of 10, the figure used by Mr.Walsh in his testimony and used by PECo witness, TABLE II, columns 3 and 4 in the structural testimony. Had PECo used this conversion rate along with a hillside evaporation area,plus the additional 500,000 sq.ft. in the dammed "Run" it could have come closer to a realistic "worst case" ARCO break. It would have come out with 24 psi or more and would then have accurately assessed the potential hazard to the safety related structures, instead of the figures in TABLE II.

In the matter of evaporation rate, Mr. Walsh never varied from the rate he arrived at, 1 cm./hour, and there is no testimony to prove that this rate is not as valid as the one chosen by the Staff. The 24 psi overpressure was not arrived at by "combining every conservatism" but only to make a comparison of PE and Staff methods and this comparison was backed up by the Board,7506- 14 to 23.

60.A. Mr.Walsh's testimony on the momentum of the jet of gas released from a Columbia break is contradictory if the assumption is made that the two severed ends point toward the plant.He says at 5460- 15 that there would be no penetration of a heavy inversion. He admits that the mixture would travel from pressure and the wind toward the plant and impingement on the excavation would not stop the stream, 5473-1 to 20. He says,however, that the mixture could reach the plant, 5469-2,but that he does not believe it would be within flammable limits,5473-8. On the other hand he said that the Hasbrouck scenario of a break at Possum Hollow Run with the pipe ends pointed down the Run for a "fire hose" effect could create the"possibility" of a flammable mass travelling down the Run. 5476- 10 to 19. There is no evidence in the testimony to show that the flammable mixture would no longer be flammable after an arbritary 360 meters. It is equally justified to assume that flammable masses could arrive within 800 feet of the plant or closer, because of pulses in the jet stream and variations in the wind force. Mr.Hasbrouck' concept of successive layers of vapor adding to the front of the mass,either in the Run, or from the PECo break location down the slope from Longview Road was not refuted.

The arbitrary "closest"detonation distance of 1,200 ft from the plant was

apparently accepted without an independent analysis by the staff, 9147-3,21, 9149-20. There is no substantiation, therefore, for this distance, leaving open the possibilities for closer detonations and higher overpressures.

78. A . It was not possible for us to "show deficiencies in construction" since no evidence of construction was permitted by the Board except one aerial photograph, at our request. However, one deficiency was brought out when Judge Brenner recalled, in the hearing on our new fuel contentions, that the license application specified storing new fuel inthe "new fuel storage vaults", 7826-23 to 7827-5. He was told that there were no vaults, they had been eliminated from the design. Had the Board allowed inquiry into "as built" conditions, as we believe it should have, other deficiencies in construction performance could have come to light, providing the only conclusive basis, from the present form of the structures, whether they afforded the structural integrity to withstand explosions, and, equally important, whether there were "margins inherent".

Page 40, Par. 79. PECo and the Staff did not use "worst case" ARCO and Columbia explosions as set forth in their alternate calculations which they both provided in the record. See 41 A and 60 A above.

85. A. The fallacy of PECo's calculations of overpressures on walls and roofs in Tables I and II becomes apparent from the maximum railroad blast pressure of 8953-1
18.2 which is not shown as all in the tables. The figuring of maximum pressure on the "critical element" makes the results symbolic and inaccurate. In an actual railroad explosion the south wall of the reactor building, for example, would be subject to overpressure at every spot on its whole surface, resulting in a cumulative total stress, not just the overpressure at the "critical element". The PECo calculations are, therefore, inaccurate, and, in addition, without "as built" evidence there is no way to determine the strong or weak spots and other irregularities in construction.

93. A. There is no proof in the testimony that 800 tons differential in weight on the bedrock between a loaded # 1 reactor and an empty # 2 "is obviously so insignificant compared to the weight of the entire facility" that it could not initiates faults or other unstablizing activity in the bedrock. There is no "weight of the entire facility" indicated. And in addition to the weight differential is the process load and the stress of extreme impacts from start up, change of loads, and shut down.

94 . A. The witnesses did not provide adequate consideration of the transfer of shocks from the suppression pool processes to the reactor structure and thence to the foundations of the plant and the bedrock support. These movements and shocks are transmitted via the bedrock and foundations to the wall foundations 9387-
of the reactor building. Should the forces of an external explosion be added, 9& 13.

the integrity of the reactor building could be threatened. This could happen as a result of the operating process without the addition of a "LOCA".

113. A. In the testimony the release of sulphuric acid was accepted and the effect on ground water evaluated. Since the acid and the chlorine structures are matching structures next to the two cooling towers, the destruction of both was assumed in a blast that would collapse both towers.
Ms. Ferkin for the Commonwealth questioned the integrity of the control room air source against smoke and fumes, 5526-12. Her question is still not answered with respect to a chlorine gas release in the vicinity of the control building from damage to the chlorine storage building which is not built to safety related standards. Such a release poses a threat to control building habitability and consequently, the safety of the whole plant.

113. B. There is no doubt that the circulating water pumphouse should be classified as safety related since it houses the fire pumps. The damage from cooling tower collapses with scattering of reinforced concrete slabs is not at all comparable with that from a ten year frequency natural phenomenon. The pumphouse Seismic Class 2 construction will not prevent its destruction under collapsing cooling towers. The two fire pumps could be damaged by building destruction and further disabled by flooding from the tower pool releases. The building is in the direct downhill flow path. Survivability of safety related structures is endangered by the prospect of simultaneous disabling of all fire pumps. 8945-2

113. C. It is ironic that our concern for protection from a railroad explosion should be termed "Improper" by PECo. The record shows that an explosion against the south wall of the reactor stucture could blow in the louvre and open the containment structure to the outdoors. A greater threat to the reactor building, however, would come from overpressures from pipeline explosions (see 41.A and 60.A above). These pressures could be twice as great as from railroad explosions, 24 psi and more from ARCO and in a similar range from the Columbia Gas line. 5508-1 to 10
We repeat our call for relocation of both pipelines which was included in the "remedies " included in our 5/2/84 findings. With respect to the railroad explosion threat, we suggested the erection of a barrier as a sedond choice since we did not consider the relocation of the railroad a possibility.

The above rebuttal of PECo's reply findings are added to our findings of 5/2/84. We repeat again our request for the six remedies (page 8) listed in our findings to mitigate the hazards to safety related structures set forth in the record of hearings on Contentions V-3a and V-3b.

Cc: Judges Brenner, Cole and Morris (Spec.Del.)
NRC Staff, M.J.Wetterhahn, T Others on Serv.List

Respectfully submitted,
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