

December 19, 1982
Docket # 50-352 & 353

Re: Philadelphia Electric Co. Limerick Generating Station, Units 1 & 2

RESPONSE OF R.L. ANTHONY AND F.O.E. IN THE DELAWARE VALLEY TO THE
BOARD'S ORDER OF NOV. 22, 1982 "CONCERNING PROPOSED FOE CONTENTIONS ON
HAZARDS FROM INDUSTRIAL ACTIVITIES" and MOTION TO RECONSIDER.
DEC 22 AM 1:40

We acknowledge the admission by the Board of Contentions V-3a and V-3b and ask respectfully that the Board reconsider for admission the following contentions, numbered in accordance with FOE's submission of 7/7/82:

Contention 1. According to the Board, missiles from railroad explosions are considered "albeit briefly" in FSAR. We say the evaluation is too brief to adequately assess the dangers to plant operation. FSAR states that only safety related buildings will be hardened. There is no protection for the 220 KV switchyard, only 130 feet from the railroad, nor two 220 KV lines, one crossing over the tracks the other along the R.R. right of way, nor a 66 KV line parallel to the tracks, nor a 220 KV tie line between switchyards, nor a 500 KV line which crosses the tracks to the substation south of the plant. (Fig. 8.2-1, Rev. 10/82) The impact of missiles on the switchyard and these exposed high voltage lines could drop live wires, flaming metal and fireballs onto tank cars, setting off a succession of fires and explosions. We are convinced of severe threats to safe plant operation from the hazards of missile damage to switchyards and these high voltage lines. We ask the Board to reconsider and admit this contention.

Contention 2. The Board denied this contention as to workers in the control room but left the hazards to other plant workers unresolved. FSAR assesses no dangers from toxic fumes produced by chemical and synthetic fires. This is a very serious omission as will be seen from the facts we cite from an article by Robert Schaeffer in FOE's "Not Man Apart", Nov. '82, entitled "Where There's Smoke". We quote Schaeffer: "Until recently, most people were unaware of the danger posed by toxic gases. A few like San Francisco Fire Battalion Chief Frank Dunphy realized the danger..." and equipped his firemen with breathing apparatuses. Schaeffer quotes Dunphy further, "A recent fire in the computer room of a San Francisco office building decomposed some of this material, and a nickle's worth of fire put four people in the hospital". We believe that poison fumes from fire in the Limerick control room computer and wiring has not been evaluated and must be.

We think that provision must be made to protect the safe performance of all the plant workers from toxic fumes produced by chemical and synthetic fires from accidents at the Hooker Chemical plant and on the railroad. We are sure that the Board is not unmindful of the fact that the TMI accident was precipitated by a maintenance crew. We ask that this contention be admitted to assure safe plant operation by provisions against toxic fire fumes. Schaeffer warns, "Of the 8,000 people who die annually in U.S. fires, 80% die from inhaling the smoke.... In the MGM fire (Grand Hotel, Las Vegas), only 16 of the 84 victims burned to death. The rest... from inhaling poisonous smoke". We ask the Board to reconsider and admit this contention.

Contention 6. Schaeffer's research on toxic gasses from synthetic fires is directly applicable to the threats to Limerick from accidents at Hooker Chemical. Schaeffer cites some of the toxic gases as Hydrogen cyanide, hydrogen chloride, hydrogen sulfide and phosgene; "Breathing caustic gases... cause(s) bloody ulcers in moist lungs... edema, where the lungs fill with fluid, a kind of monsoon-swift pneumonia... Tearing eyes become acid ponds, the cornea etched like an engraver's plate."

FSAR, (table 2.2-6) does not list hydrogen chloride or phosgene at all nor does it evaluate these and hydrogen cyanide and hydrogen sulfide as products of fire, only as released through storage or transportation accidents. DS03

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Toxic gases from fire on the railroad of supplies for, or products from, Hooker Chemical, next to the Limerick plant pose serious danger to all plant personnel. We ask that the Board reconsider this contention and admit it.

Contention 8. We wish to call the Board's attention again to the Omission from FSAR (sect. 2.2.3.1.4) of consideration of toxic fumes from chemical and synthetics fires. FSAR sums up thus (p. 2.2-8, rev 3/82): "Potential adverse effects of such fires (burning tank car, etc.) are radiant heat load on plant structures and smoke generation..... Assuming 19,600 Btu per pound of propane and 62 tons being consumed in 20 minutes smoke effects of such a fire would be negligible." This is not true as applied to railroad fires and at Hooker, which would include not only propane but plastic materials and products. Schaeffer, cited above, quotes Gordon Vickery former head of the U.S. Fire Admin. thus, "The science of combustion technology is only seven or eight years old." We believe, however, that what has been learned in this science must be incorporated in FSAR and we ask that this contention be admitted to offset this omission.

Contention 9. We believe that the Board missed the essential point of this contention as shown in its statement: "Further, no basis is set forth or apparent to us for believing that the effect of such quarry explosions, either expected or accidental, would be greater than the potential explosion of the ARCO pipeline." It is not a matter of "greater effect" or "either or". The Quarry is north and west of the plant and an explosion there could rupture rail cars releasing propane, petroleum, synthetics and other chemicals causing fire and explosions within 100 feet of plant buildings. Such an accident could happen independently from or simultaneously with a pipeline rupture. The effects of both must be evaluated and no value attached to which accident would have a greater effect. Their effects could be cumulative and put strain on different parts of the plant, the railroad explosion on the west and north, the pipeline on the south and east. We believe that an explosion at the quarry could set off a chain reaction along the tracks and must be evaluated in addition to, and supplementing the potentials set forth in Contention 1. We ask the Board to reconsider and admit Cont. # 9.

Respectfully submitted for R.L. Anthony and FOE,

Robert L. Anthony
CC. Judges Brenner, Cole, Morris, NRC Sec., Lic. Appeal, Staff, ACRS, T. Conner, E. Bauer and Limerick Lic. service list.

↓ p 8 "Not New Apart" Nov. '82

Not Man Apart, November 1982

by Robert Schaeffer

Photo by Gregory Ouyang. Courtesy San Francisco Fire Department.

Where There's Smoke...

It wasn't a very big fire. The revelers in room 404 of the Westchase Hilton in Houston escaped the flames. Twelve occupants of rooms on the hall would also escape the flames, but not the smoke.

Across the hall, Ronald, Cecile, Ron Jr., and Jonathan Pabst huddled on the floor at the foot of the bed to get below the smoke seeping into their room. In 411, the Espanol family, five members of three generations, did the same. Both families died together, their lungs ulcerated by toxic fumes, their eyes etched by the hydrochloric acid that formed when hydrogen chloride gas mixed with their tears.

In 412, Edith Anderson, 75, wedged soaked linen in the door and tried to break open the window in her suite with the table lamp. She broke the lamp but not the sealed window. She was rescued unconscious by firemen and survived. Her younger sister, Mrs. Drakert, was rescued from 415 and treated at Rosewood Hospital. There she made a recovery. But three days after the fire she became ill. Two months later she died.

Escaping hotel guests might have caught whiffs of bitter almonds, vinegar, rotten eggs, or perhaps the scent of freshly mown hay as they ran for the stairs. Gases from hydrogen cyanide, hydrogen chloride, hydrogen sulfide, and phosgene would produce these smells. Fires that consume furnishings made of synthetic plastics—nylon carpets, mattresses, drapes, foam beddings, simulated wood paneling and TV cabinets, bathroom fixtures and shower curtains, and wall coverings—produce these gases.

Breathing caustic gases is rather like snorting Drano. They cause bloody ulcers in moist lungs and mucous membranes. They produce edema, where the lungs fill with fluid, a kind of monsoon-swift pneumonia. Tearing eyes become acid ponds, the cornea etched like an engraver's plate. Then there are the after-effects. Phosgene can remain latent for up to 24 hours.

It takes very little plastic in a room to kill... most homes contain 300-500 pounds of plastic.

Symptoms of gas attack—shortness of breath, coughing, nausea, vomiting, headaches—can recur up to six weeks later, and victims, like Mrs. Drakert, can suffer a relapse.

In all, twelve people died, most of them behind closed doors. They died from the fire, but did not perish in the flames. The fire was contained in 404. The deputy fire chief on the scene said that the firefighting itself was "fairly straightforward."

Towering Infernos, Household Hells

"Americans don't give a damn about fire," Gordon Vickery, former head of the US Fire Administration, complains. "Our

casualty rate from fire is five times that of European countries."

Of the 8,000 people who die annually in US fires, 80 percent die from inhaling the smoke. The recent rash of hotel fires—at the Stouffer's Inn near New York City, where 26 died; MGM Grand Hotel in Las Vegas, where 84 died; and the Westchase Hilton in Houston, where 12 died—alerted many to the danger of smoke from fires. In the MGM fire, only 16 of the 84 victims burned to death. The rest died from inhaling poisonous smoke.

A complex mixture of deadly smoke was produced by decomposing plastic furnishings in hotel rooms. The average hotel

room is furnished with products containing 20 pounds of polyvinyl chloride (PVC, a standard ingredient of most synthetics) and other synthetic materials. Yves Alarie, professor of Public Health at the University of Pittsburgh, warns, "It takes very little plastic to kill in a small room." Scientists at the University of Pittsburgh have found that five ounces of burning PVC emits enough hydrogen chloride gas to kill all the people in an average size bedroom in ten minutes.

Standards, says, "Synthetics have a heat content two and three times higher than cellulose, cotton, wood; are generally easier to ignite; and produce a more complex mixture of gases."

"Because synthetic materials burn twice as fast and twice as hot as natural materials," Gordon Vickery warns, "this amount of new plastic is equal to two pails of gasoline." Most homes now contain 300 to 500 pounds of plastic. Conventional materials—wood and natural fiber—also produce toxic gases. Carbon monoxide is a primary product of combustion from these materials. But carbon monoxide is not caustic; it doesn't damage eyes or lungs on contact. Synthetically produced gases are much more toxic. Hydrogen cyanide, for instance, is 30 times more poisonous than carbon monoxide.

It's a gas, gas, gas

Until recently, most people were unaware of the danger posed by toxic gases. A few, like San Francisco Fire Department Battalion Chief Frank Dunphy, realized the danger back in 1956. On December 31, the Land Brothers factory, which manufactured Ping Pong balls, burned down. "Over 150 people went to the hospital as a result of the Ping Pong ball fire," Dunphy recalls, "After that we started using breathing apparatuses."

But science has been slow to respond. Most people still assume that carbon monoxide is to blame for most fire-related deaths. This is because coroners, who routinely examine fire fatalities, test only the level of carbon monoxide in the blood. Dr.

Houses, like hotels, contain increasing quantities of plastic material. Americans are adding between 10 and 15 pounds of plastic to their homes each year, Merritt Birkey, head of Combustion Product Technology at the National Bureau of Stan-