

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

APPEAL
Before the Atomic Safety and Licensing Board

In the Matter of)	
)	
Philadelphia Electric Company)	Docket Nos. 50-352
)	50-353
(Limerick Generating Station,)	
Units 1 and 2))	

A F F I D A V I T

BRUCE MOLHOLT, Ph.D., being duly sworn, deposes and says:

1. I am Adjunct Associate Professor of Health Education, Temple University, Philadelphia, Pennsylvania 19122.
2. My Ph.D. is from Indiana University, Bloomington, Indiana (1967). Postdoctoral training in molecular genetics was received from Karolinska Institutet (Stockholm, Sweden), the University of Ghent (Ghent, Belgium) and the University of Heidelberg (Heidelberg, Federal Republic of Germany). I have taught and conducted molecular genetic research at the University of Kansas, University of Geneva, Czechoslovak Academy of Sciences, Haverford College and Bryn Mawr College. I have taught and conducted research into the molecular basis of carcinogenesis at the Medical College of Wisconsin, Haverford College and Bryn Mawr College.
3. My field of specialization is genetic toxicology with emphasis on the molecular genetic basis of human

carcinogenesis. I have conducted research and published papers on human prostatic carcinoma, human breast carcinoma and the mutagenic specificity of chemical carcinogens.

4. The purpose of this affidavit is to demonstrate that human health risks from liquid and airborne effluents of the Limerick Nuclear Station have been underestimated by Philadelphia Electric Co. and by the U.S. Nuclear Regulatory Commission. This affidavit is filed in support of contentions by Robert Anthony and Friends of the Earth.

5. Exposure to airborne radionuclides at 270 m, the closest point of access, will be ten times more intense than at either 790 m or 762 m, plant boundaries assumed in the Environmental Impact Statement, assuming a simple diffusion model, e.g., during meteorologic inversion. There is no reason to assume that a given individual would spend more time at 790 m or 762 m than at 270 m or other proximal points along the Schuylkill River.

PECO EFFLUENT REP. 2/85 ATTACH D, FIG. XI.A.2

6. Liquid radionuclide exposure from fish will be more intense than calculated, if fish are consumed the day of the catch. This is due to both bioconcentration of radionuclides with short half-lives and the biologic half-lives of radionuclides in contaminated fish.

7. Tritium has been released from Limerick Nuclear Station and will continue to be released into drinking water supplies during plant operation. Samples during the initial 10 days of criticality show a linear dilution of tritium activity with distance downstream from Limerick Nuclear Station:

TRITIUM IN DRINKING WATER SUPPLIES
(22-31 December 1984)

<u>Drinking Water Supply</u>	<u>Distance from Limerick</u>	<u>Tritium (pCi/liter)</u>
Citizens Home Water Co.	2.4 miles	240 \pm 90
Phoenixville Water Works	5.2 miles	100 \pm 100
Philadelphia Suburban Water Co.	7.8 miles	< 100

TABLES B-II, C-XII

From: Regional Radiological Environmental Monitoring
Program, Report #1, 22-31 December 1984, Limerick
Generating Station (May 1985) (TELEDYNE 150)

Despite this linear dilution with distance from the Limerick plant, the above-cited report concluded "No significant difference in tritium activity was observed between the control and indicator locations." The upstream control at Pottstown reported tritium at 150 \pm 70 pCi/liter.

8. As tritium moves up the food chain, it is incorporated into macromolecules, including DNA. Tritium in DNA or DNA precursors is orders of magnitude more genotoxic than free tritium.

9. Due to accidental dumping of floor drains into the Schuylkill River, 645 μ Ci iron-55 contaminated this drinking water supply from the Limerick Nuclear Station 21-31 December 1984. Iron-55 will be built into heme as it moves up the foodchain toward man. Heme containing iron-55 is leukemogenic.

PECO EFFLUENT REP. 2/85, LIQUID EFFLUENTS p.5

10. Prior to full power testing, there is already evidence of genotoxic radionuclide contamination from the Limerick Nuclear Station. Contamination of air and water by tritium, iron-55, krypton-85, xenon-133 and other radionuclides will increase during full power testing and operation. Extant pathways from air and water contamination to man have not been adequately determined by the U.S. Nuclear Regulatory Commission in order to protect the public from routine radionuclide effluents of nuclear power plants. In the case of the Limerick station, with a large nearby resident population at risk by both air and water routes, this lack of public protection is particularly acute.

Bruce Molholt

BRUCE MOLHOLT, Ph.D.

Sworn to and subscribed before me
this 2nd day of July 1985.

Olivia M. Brennan