

Chairman Stetkar, thank you for providing this opportunity to express our concerns.

In order to introduce myself, I am an experimental psychologist; my husband is an engineer and physicist. We worked as research scientists as members of the Technical Staff of the Bell Telephone Laboratories in Murray Hill NJ before moving to Pennsylvania in 1963. We lived in Chester County, 45 miles south east of the TMI reactors on a 300 acre site which we developed into a working farm using organic horticulture.

In September 1979, at the invitation of the NRC, our family became a party in the NRC hearing to decide whether or not TMI-Unit 1 should be re-licensed following the TMI accident.

After participating for nearly five years, we first heard that residents who had symptoms attributed to psychological stress lived in certain neighborhoods. That belied a psychological origin and thus I conducted door to door interviews in three of those neighborhoods and uncovered a rate of death from cancer which was ten times the expected rate for those townships. The TMI Public Health Fund scientific advisors verified the data and population numbers and this was indeed, an excess of cancer deaths with clear relationship to the TMI accident. Drs. Cobb, Cochran, Morgan, Woodwell and Abrahamson were most intimately involved with our work and they prevailed in getting the Health Fund to underwrite a follow-up by researchers with Columbia University.

They found a post-accident rate of cancer incidence for the ten mile area in excess of what was expected. Particularly outstanding was the incidence of lung cancer, but the cause was not attributed to the accident because the researchers were informed that no member of the public received a radiation dose in excess of 100 mrems. In 1997, Dr. Steve Wing determined that the rise in cancer incidence among the 69 civil divisions correlated almost perfectly with the relative distribution of radiation made by Dr. Beyea who developed the distribution with the utility's consultant. The relationship between increase cancer rates across increasing levels of dose was most consistent for lung cancer. Dr. Wing's work was published in Environmental Health Perspectives, 1997.

The lynch pin is that in 1994 and 1995, we obtained blood samples from residents who complained of symptoms such as erythema, difficulty breathing, nausea, tingling skin, metallic taste and smell at the time of the accident and later there was loss and graying of hair. There were 29 people tested ranging in age from 16 to about 60 years old. The samples were analyzed by scientists at the Russian Academy of Sciences. They found universal severe immune system suppression, increased levels of stable and unstable chromosome aberrations and a frequency of translocations obtained with the FISH method from which they estimated average absorbed dose for the examined persons of approximately 100 rems. This work was published by the Scientific Council on radiobiology of the Russian Academy of Sciences, March 1996.

Earlier, within a few years after the accident, a study commissioned by the NRC to investigate the alleged psychological symptoms experienced by residents, found that all subjects had significant lymphocyte depression. Repeated testing of these subjects five years later showed that immune system depression persisted and the researcher proposed that the cause was radiation exposure which the subjects had in common since a control group living in Delaware and highly stressed by identification of a toxic waste dump in their neighborhood did not exhibit lymphocyte depression. The threshold dose to cause immunosuppression is 50 rems. This NRC funded study was principally the accomplished by Dr. Andrew Baum of the Uniformed Services University.

The number of TMI residents who were severely exposed to ionizing radiation is not limited to the approximately 450 residents of the three neighborhoods west of TMI which I surveyed or the several dozen subjects studied by the Russian Academy of Sciences or the two dozen subjects considered by Dr. Baum. Many other people complained of symptoms to various entities from the time of the accident. Records of the identities of these people are held by a census-taker for the CDC/PDoH survey of 5 mile area residents, a state representative who later became mayor of Harrisburg, several area doctors, and most notably scientists who, upon finishing graduate courses at Columbia University, spent several years immediately following the accident gathering this information. These young scientists provided their findings to the Three Mile Island Alert organization and then published in journals of Kyoto University where one of the researchers is on the faculty. The surviving members of this cohort of this group of exposed persons could be identified and tested for the presence of translocations by the FISH method. I would suggest using the services of the Russian Academy of Sciences due to their vast experience in conducting and interpreting these tests.

The most recent and alarming information is that people who were living within 5 miles of TMI have been dying over the twenty years following the accident at a significantly higher rate than the population of the three adjacent counties indicating the effects of continued immune system suppression of this population of approximately 30,000 people. There were significant elevations in male deaths from cancer of the respiratory system, from cancer of the bronchus trachea and lung, from nonmalignant respiratory disease, even when compared to the three county aggregate in which excesses of lung cancer were discovered by the Columbia/Wing studies. Other elevations for males included all malignant neoplasms, breast cancers and leukemia and all external causes. For females, there were significant elevations in deaths from non-malignant respiratory disease, cancer of the nervous system, breast cancer, leukemia and lymphatic and hematopoietic tissue, other lymphopoietic cancer and cancer from all external causes. Ten children under eighteen years of age died due to cancers, which included cancers of the bronchus/lung, acute leukemia, Hodgkins disease, lymphoma, ovary and brain. This cohort was identified by CDC and PDoH for the specific purpose of determining the environmental status of the people living close to the reactor.

Re-licensing of the Unit 1 reactor will expose already compromised people to an unnecessary exposure to radioactivity which we believe is contrary to the mandate of the NRC to protect human health and safety. The NRC has admitted the release of

radioactivity to the environment in excess of established limits will result from replacement of the steam generators. Many of these families have lived in the TMI area for generations and are not able to move away. I spoke with one such family on this recent past 30th anniversary of the accident. They are presently coping with the recovery of a daughter from the removal of tumor the size of an orange. The mother died of a heart attack after unexplained suffering for many years of undiagnosed back and leg problems. The father still develops skin rashes when he spends time outside. These people had symptoms of exposure during the accident.

Because the steam generators tubes have been leaking these many years, people have been receiving more exposures. I do not see where this impact on the community has been evaluated. These releases are of particulates of as many as 240 different kinds of radionuclides according to Dr. Kocker. The risk is similar to NRC's analysis of exposure to radon. I am now quoting from your draft statement on pp. 8-27 and 28: The particulates are inhaled and remain lodged in the lungs, causing continued exposure. This relevant exposure of TMI residents from inhalation of radioactive particulates has never been acknowledged or considered.

Your report admits that recent monitoring of leafy vegetation, soils and sediment, surface water and fish show concentrations of radiological contaminants. The REMP program found strontium 90 in more than one-half of the small number of milk samples tested and nearly all food products. The pre-operational period which you use as the baseline included the accident and cleanup periods. Assumptions of residual fallout due to weapons testing at this time is not a credible explanation. I think what you are saying TMI area residents have experienced continual internal exposure to radioactive particulates from fallout due to weapons testing and nuclear power generation.

We believe that the law and conscience require additional assessment of the health status of the population. Before any decision is made to replace the steam generators and re-license Unit 1, I am requesting that the study of 5 mile residents be updated to the present time and the data be made available to independent researchers for consensus and follow-up with FISH tests for translocations in the blood of families suffering medical problems. In the meantime, Unit 1 should be shutdown. It would be the right thing for you to do.

As an alternative to re-licensing Unit 1, the NRC acknowledges that "Conventional Hydroelectric Power" (8.6.6. of the draft statement) could play a role but the NRC staff did not evaluate hydropower as an alternative to license renewal. I would strongly suggest that the NRC do that.

Thank you.

Marjorie Aamodt
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ACRS Meeting