

TESTIMONY BEFORE THE SELECT COMMITTEE ON NUCLEAR ELECTRICITY GENERATION

PENNSYLVANIA STATE SENATE

by

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Nearly 200 years ago your great State was the origin of the historic words:

"We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain inalienable Rights, that among these are Life, Liberty and the Pursuit of Happiness....."

It has become clear to an increasing number of citizens that our democratic rights to the pursuit of Happiness in the form of a livable Environment are being seriously infringed upon by ill-considered, arrogant technological programs -- all in the name of "Progress". Such programs are being foisted upon your State and other states by crudely anti-democratic processes. Certainly the current handling of the national problem of electric power requirements is a disgrace. Pennsylvania has an opportunity, beginning with this Hearing in its Legislature, to make a unique contribution to the restoration of some reason in the handling of our environmental crisis, a crisis deeply interwoven with numerous fantasies surrounding electric power production.

I should like to suggest that the Pennsylvania Legislature consider a five-year moratorium on the planning, construction, and operation of the new nuclear electric power plants built above-ground. The reasons for this recommendation are specific and succinct.

(1) Electric power requirements have not been rationally discussed in relationship to the intrusion upon a livable environment.

(2) Nuclear electric power development has proceeded with the most grave failure of appreciation of the radiation hazard to the population.

(3) Nuclear power development represents an anti-democratic disfranchisement concerning which citizens are properly becoming aware and incensed.

(4) Nuclear electric power plants represent a gigantic experiment conducted upon, and at the possibly serious expense of, the citizens of your State. No one knows at all the risk of catastrophic accidents.

(5) The creation of fast breeder reactors and its concomitant "plutonium economy" may well represent man's greatest **immoral** act.

#### Electric Power Requirements

No rational dialogue has even begun in the United States concerning electric power requirements in relationship to the maintenance of a livable environment. Simply replaying the platitudinous sacred cow that our electric power "needs" are doubling every ten years is an insult to an intelligent community of humans. Why should our power "needs" double when our population increases 10 percent? No explanation has been provided. Nor has any evaluation of the environmental consequences of such electric power utilization ever been made available. It is abundantly clear that increased electric power use means increased pollution. It is by no means clear that increased power means an increased standard

of living for Pennsylvanians. The more likely result may be a progressive deterioration in the quality of life.

The hucksters in nuclear promotion unabashedly play upon fears of brownouts and power shortages in their effort to rush through ill-considered, dangerous, experimental nuclear power plant installations above-ground near the very heart of America's major metropolitan communities, potentially endangering the lives and homes of the bulk of our population. One thing is certain, i.e. if we do need more electrical power, the worst possible approach is to rely upon new, untried, experimental nuclear power plants. Any such real needs should be met by reliable power plants, and these should be forced to clean up noxious emissions. The argument that nuclear plants do not pollute, while fossil-fueled plants do, is a farce and must be so exposed. Invisible radioactive pollution forever can be far, far more deadly than fossil-fueled plant emissions, which emissions can and must be curbed in any event. Vast sums of taxpayer funds have been unwisely expended for crash nuclear reactor development. Scandalous sums of citizen monies have been diverted by the electric utility industry into electric power promotion. These combined wasteful expenditures have diverted necessary funds from the needed research and development of cleaner fossil-fueled plants, which we need no matter what happens with respect to nuclear electricity generation. All types of electric power generation represent severe polluters of the environment, which makes research and development toward greater safety and less environmental impact an item of the highest priority.

A first task Pennsylvania might undertake is sponsorship, as a national example, of a rational dialogue involving citizens, scientists,

industry, and government concerning the issue of genuine electric power needs. Pennsylvanians can certainly afford the time and effort for such an open forum evaluation before rushing precipitously to the brink of disaster.

The Grave Failure of Nuclear Power Advocates to Understand the Radiation Hazard

It came as a rude shock and awakening to my colleague, Dr. Arthur Tamplin, and me that the electric utility industry, Congressional members, state legislative officials, and the nuclear reactor industry have all been grossly misinformed concerning the grave hazard of ionizing radiation to humans. All of these groups have been under the tragic illusion that the currently codified allowable radiation dose for the average U. S. citizen of 170 millirads per year is "safe". Largely responsible for this illusion is a propagandistic promotion campaign, using taxpayer funds, for nuclear power plants by the U. S. Atomic Energy Commission. This has created a travesty of sound public health principles and practice. I can say that Americans are definitely not receiving this full allowable dose now from Atomic Energy programs. And Pennsylvania and the rest of this Nation must insure that they never receive even a very small fraction of this dose, unless genocide is our objective. How much we receive now is a total non-sequitur with respect to the issue of "safety" of the currently allowed radiation dose. It is indeed fortunate that the myth of safety of such a Federally codified allowable dose can be shattered before grave and irreversible human injury results.

Safety can be discussed in two separate contexts, absolute or relative. In both contexts the currently codified Federal Radiation Guidelines are found to be totally erroneous.

In the absolute sense, safety could be assured if we knew unequivocally that radiation dosages below the "allowable" were without harm to humans. Categorically I can state that no amount of radiation is known to be safe. All the scientific evidence indicates proportional harm all the way to the lowest dosages, including those from natural sources.

The idea of a "safe" amount of radiation is referred to as the "threshold" concept. This is a convenient, mythical hope of atomic energy promoters, unsupported by any evidence. Dr. Karl Z. Morgan, the world's most eminent health physicist, has expressed this best in the following quote(1).

"I believe present evidence points to the fact that most, if not all, types and forms of chronic radiation-induced damage relate more or less linearly to the accumulated dose, and there is no justification for one to assume the existence of a threshold below which these forms of damage would not result. This, I believe, has been the principal force of the argument presented by Gofman and Tamplin. To this, I agree and lend my strongest support. In this statement, I might say I am supporting also the expressed positions of ICRP and NCRP, as well as the Federal Radiation Council. I hope this is or will be made the expressed opinion of the AEC."

Dr. Morgan has stated the issue beautifully. The AEC position has flip-flopped on this issue several times in nine months. It is too early to know where the AEC will light, if they ever do.

In a relative sense, safety could be suggested if it could be demonstrated that the benefits to be received by those being radiated

exceed the damage to their health and life from the radiation. Categorically it must be stated that no such evaluation of benefit versus risk for the so-called "allowable" doses of radiation has even been attempted, let alone accomplished. Citizens of Pennsylvania will be puzzled by benefit versus risk calculations, where the benefits are expressed in corporate profits and the risks expressed in cancer, leukemia, and genetic diseases to themselves and their children.

Thus, no evidence, absolute or relative, exists for safety of the Federally permitted doses of radiation. The realization that no such demonstration of safety exists comes as a surprise to an unsuspecting, trusting public, as well as to the Directors of the electric utility industry.

On the contrary, the hazard of nuclear radiation has been grossly, I repeat, grossly, underestimated until recently. Our recent evaluation of the hazards of the allowed amount of radiation (detailed in the accompanying document, entitled "Nuclear Energy Programs and the Public Health") provides the following results to be expected if the average person is exposed.

- (a) Cancer plus leukemia: An additional 32,000 deaths per year for our population of 200-million people.
- (b) Genetic deaths: Far more grave than the cancer-leukemia risk. Especially is this true because the currently codified "allowable" doses were established before all the really important genetic information had become available. As a result, only the very tip of the iceberg of genetic hazard was perceived by those attempting to set standards. We now know that over and above infants with

physical and mental infirmities, the major disease of our country, coronary heart disease, has important genetic determinants, and will, therefore, be increased by radiation-induced genetic mutations. The ultimate cost of average population exposure to "allowable" radiation doses will be:

150,000 to 1,500,000 extra genetic deaths per year plus a 5% to 50% increase in non-fatal but socially destructive diseases such as schizophrenia and rheumatoid arthritis.

All of this can approach what might best be described as a prescription for genocide of the human species.

The Atomic Energy Commission, after desperately endeavoring to suppress our estimates of these grave risks, is now faced with most serious embarrassment. For, totally independently, the world-rekknowned Nobel Prize-winning geneticist, Professor Joshua Lederberg of Stanford University, has made equally depressing estimates of the gravity of the genetic hazard.(2)

Professor Lederberg, referring to Government as "the most dangerous genetic engineer" has estimated that average exposure to the Federal Radiation Council allowable dose can ultimately result in an added burden of medical and health care costs due to genetically determined diseases of 10-Billion dollars annually. And because of uncertainties, Professor Lederberg states the true cost may range between 1-Billion and 100-Billion dollars annually.

Our estimates are completely consistent with those of Professor Lederberg. And we might remind the Atomic Energy Commission that, in our initial scientific presentation, we stated that the genetic hazards were undoubtedly far greater than the cancer-leukemia hazard. So this recent very depressing news can certainly not surprise the AEC.

We do not intend, nor have we ever intended, criticism of anyone for having grossly underestimated radiation hazards in the past. The principles of sound public health approaches simply were not understood by standard-setting bodies. Two such major principles are:

- (a) In ignorance - refrain.
- (b) At any time, always be mindful that our ignorance of medical and biological matters pales our knowledge.

For past erroneous action no criticism should be levelled. We must be thankful that we can learn sound, humane public health principles before it is too late. But deep and sustained criticism is mandatory for continued arrogance when those principles are appreciated. The people of Pennsylvania most assuredly will be incensed, and appropriately so, at arrogant indifference to the now-readily available evidence. Moreover, no amount of obfuscation by promoters of atomic energy through such charges as "scare-laden", or "hyperbolic claims" will make the evidence disappear.

Not a single scientific challenge to these estimates has been made by anyone. "Hopes" have been expressed that the effects upon human health will in some mysterious way turn out to be less than estimated. We would also hope so, for humanity's sake. But hopes are not evidence, no matter how fervently such hopes are cherished by promoters of nuclear electricity generation.

Anti-Democratic Disfranchisement of Citizens Associated with Nuclear Electricity Promotion

Several major, overt procedures disfranchise citizens in the current nuclear electricity promotion.

(1) Loss of Homeowner Insurance Coverage

Reproduced below are two "Nuclear Clauses" from my Homeowner's Policy issued by the Hartford Insurance Group, one of the Nation's largest and reliable Insurance Companies.

**2. Nuclear Clause -- Section 1:** THE WORD "FIRE" IN THIS POLICY OR ENDORSEMENTS ATTACHED HERETO IS NOT INTENDED TO AND DOES NOT EMBRACE NUCLEAR REACTION OR NUCLEAR RADIATION OR RADIOACTIVE CONTAMINATION, ALL WHETHER CONTROLLED OR UNCONTROLLED, AND LOSS BY NUCLEAR REACTION OR NUCLEAR RADIATION OR RADIOACTIVE CONTAMINATION IS NOT INTENDED TO BE AND IS NOT INSURED AGAINST BY THIS POLICY OR SAID ENDORSEMENTS, WHETHER SUCH LOSS BE DIRECT OR INDIRECT, PROXIMATE OR REMOTE, OR BE IN WHOLE OR IN PART CAUSED BY, CONTRIBUTED TO, OR AGGRAVATED BY "FIRE" OR ANY OTHER PERILS INSURED AGAINST BY THIS POLICY OR SAID ENDORSEMENTS; HOWEVER, SUBJECT TO THE FOREGOING AND ALL PROVISIONS OF THIS POLICY, DIRECT LOSS BY "FIRE" RESULTING FROM NUCLEAR REACTION OR NUCLEAR RADIATION OR RADIOACTIVE CONTAMINATION IS INSURED AGAINST BY THIS POLICY.

**3. Nuclear Exclusion -- Section 1:** THIS POLICY DOES NOT INSURE AGAINST LOSS BY NUCLEAR REACTION OR NUCLEAR RADIATION OR RADIOACTIVE CONTAMINATION, ALL WHETHER CONTROLLED OR UNCONTROLLED, OR DUE TO ANY ACT OR CONDITION INCIDENT TO ANY OF THE FOREGOING, WHETHER SUCH LOSS BE DIRECT OR INDIRECT, PROXIMATE OR REMOTE, OR BE IN WHOLE OR IN PART CAUSED BY, CONTRIBUTED TO, OR AGGRAVATED BY ANY OF THE PERILS INSURED AGAINST BY THIS POLICY; AND NUCLEAR REACTION OR NUCLEAR RADIATION OR RADIOACTIVE CONTAMINATION, ALL WHETHER CONTROLLED OR UNCONTROLLED, IS NOT "EXPLOSION" OR "SMOKE". THIS CLAUSE APPLIES TO ALL PERILS INSURED AGAINST HEREUNDER EXCEPT THE PERILS OF FIRE AND LIGHTNING, WHICH ARE OTHERWISE PROVIDED FOR IN THE NUCLEAR CLAUSE CONTAINED ABOVE.

How many Pennsylvanians have examined their homeowner's policies to realize that nuclear damage disfranchises them? How many Pennsylvanians have wondered why Insurance Companies have so little confidence in the nuclear energy industry to require such liability exclusion clauses?

I urge every Pennsylvanian to examine his homeowner's insurance and to ask himself whether he likes the risk to his life, whether he enjoys disfranchisement - for an enterprise about which the insurance industry is too skeptical to risk dollars?

(2) The Pernicious, and probably unconstitutional, Price-Anderson Act

The Price-Anderson Act provides a maximum liability of approximately \$560,000,000 for any single nuclear plant disaster. Yet even an AEC laboratory's estimates (Brookhaven Report Wash-740) for a serious accident, with much smaller nuclear electricity reactors than those currently planned

for Pennsylvania, indicated monetary losses up to 7-Billion Dollars. The individual, lucky enough to escape with his life from such an accident, stands to recover a maximum of seven cents on each dollar lost. This represents disfranchisement in the extreme perpetrated by an ill-considered Act of Congress - an act most likely to be held unconstitutional when tested.

If the Price-Anderson Act were repealed, as it assuredly should be, it is extremely doubtful that any future nuclear electric plants above-ground would even be contemplated by the electric utility industry.

If the insurance industry has so little confidence in the safety of nuclear power plants, expressed by the industry's unwillingness to underwrite the total liability, there is no reason whatever for Pennsylvanians to risk both their lives and their environment.

It has been repeatedly stated by electric utility propagandists that the insurance industry has no "experience" upon which to estimate the risks of a major nuclear power plant accident. The insurance industry is thereby telling us that the hopeful, optimistic safety calculations of nuclear electricity propagandists simply don't impress them enough to risk dollars. Should Pennsylvanians trust such safety pronouncements enough to risk their lives, their property, and their genetic heredity?

(3) Disfranchisement of over 95% of the Population by Nuclear Power Plant Propaganda

Most scandalous of all is the blatant technique used throughout the land for facilitation of installment of nuclear electric power plants. The most brazen recent illustration is in Ipswich, Massachusetts, but the phenomenon is general, and Pennsylvania will be no exception.

For a variety of obvious economic reasons power companies like to have electricity-generating plants as close as possible to major population and industry centers. As yet, they have not been so completely callous as to attempt putting nuclear electric plants directly within major metropolitan centers. Two major reasons have inhibited them.

- (a) Sophisticated knowledge of hazards is more likely in such centers.
- (b) A major promotional gimmick is thereby lost.

Let us examine this promotional gimmick and expose it fully.

A small community, say of 5,000 to 20,000 population, is chosen some 20-40 miles from a major population center. Anyone conversant with nuclear hazards realizes that a major nuclear plant accident 20-40 miles away can easily endanger a million or more residents in a major metropolitan center.

The first step in the campaign by the utility propagandists is to convince the small community's officials and its Chamber of Commerce that jobs will be created. Further, the citizens of the small community are mesmerized by the prospect of a massive reduction in their taxes - such taxes ostensibly to be paid instead by the nuclear plant. How attractive! These combined economic incentives are hard to resist, especially when accompanied by that classic blandishment, "Nuclear Power Plants are Good Neighbors". In the community of Ipswich, Massachusetts a group known as MEPP has gone so far in this gimmickry as to label itself as dedicated "To Conserve Ecology" and to publish a monthly entitled, "Plum Island Sounding News". In that publication they blatantly proclaim:

Tax Base Without Nuclear Plant \$66/per \$1000

Tax Base with Nuclear Plant \$24/per \$1000.(3)

Thus, by an economic enticement to 5,000 or 20,000 residents of a small community, this fraudulent approach can disfranchise a city of 1,000,000 inhabitants. Ipswich can readily disfranchise the great city of Boston, Massachusetts. And this is precisely what I mean by the pernicious and devious approach to disfranchisement of over 90% of the population in the promotion of nuclear electric plants. Assuredly, as your citizens in Pennsylvania's major metropolitan centers learn of such techniques, eminently justified outrage may end such anti-democratic procedures. It certainly behooves the Legislature of the great State of Pennsylvania to consider elimination of such practices.

#### Nuclear Power Plant Safety Against Major Accidents

Every major nuclear power plant now being planned or constructed represents a gigantic experiment - being conducted virtually in the backyard of a major metropolitan center. I feel certain that the designers, the engineers, and the manufacturers hope very fervently that major nuclear disasters with such plants can be avoided. Two major reasons, separate and equally cogent, militate against the public and the Pennsylvania Legislature relying upon hope to avert unparalleled potential disaster.

(1) The entire nuclear industry developed with its designers and planners under the illusion that they were working with a wide margin of safety with respect to radiation hazards. They had been led to believe that the "allowable" dose of radiation was 100-fold or more below the hazard level for humans. Not only is there no margin of safety in such standards; we have seen above there is a severe hazard at the allowable

radiation guideline level and well below such a level. As a result, design and engineering has proceeded under an illusion of an approximately 100 or 1000-fold safety factor. Every engineer knows what this means. It would be manifest folly to trust such design and engineering.

(2) No matter what hopeful pronouncements are pontifically made, all sober realists admit freely that we simply don't know the risks of major accidents at nuclear power plants. Perhaps the most honest, straightforward statement about such risks has been published recently by an eminent proponent of nuclear power, the physicist, Dr. Walter Jordan. Dr. Jordan is Assistant Director of Oak Ridge National Laboratory and is a member of the Atomic Safety and Licensing Board Panel. I quote directly from Dr. Jordan's statement in the journal, "Physics Today", May 1970.<sup>(4)</sup> (Dr. Jordan):

"Have we succeeded in reducing the hazard to such a low level? There is no way to prove it. We have accumulated so far some 100 reactor years of accident-free operation of commercial nuclear electric power stations in the U. S. This is a long way from 10,000, so it does not tell us much.

The only way we will know what the odds really are is by continuing to accumulate experience in operating reactors. There is some risk but it is certainly worth it."

Dr. Jordan does indeed "tell it like it is". He states clearly we have no idea what the risk of a major accident is, but says it is worth experimenting to find out. I have no quarrel whatever with experimenting in deeply buried, underground nuclear power plants, as suggested by Professor Edward Teller. I would concur, concerning reactor siting, with

the eminent health physicist, Dr. Karl Z. Morgan, when he says, in recent testimony before the Senate Subcommittee on Air and Water Pollution (August 4, 1970):

"I do not believe [this] justifies that in the future we press our luck in building nuclear power plants of present design near the centers of our big cities. By proper design of various containments, underground construction, building such plants in isolation, or building reactors in which most of the inventory of fission products is continuously removed, most of the risks of a major accident will be eliminated, and I strongly support any programs leading in this direction."

It is indeed regrettable that nuclear power proponents listen with deaf ears to such sage advice from Dr. Jordan, Dr. Teller, and Dr. Morgan. There are hardly any areas of the State of Pennsylvania that can be regarded as isolated, and 50 miles is a trivial distance for deadly radioactive contaminants to travel. Should the State of Pennsylvania experiment to learn the odds of a major nuclear reactor disaster in combination with risking the lives of millions of Pennsylvanians and their environment? Is not Dr. Morgan's or Dr. Teller's advice preferable? The Legislature of Pennsylvania can avert such folly by a moratorium on nuclear electric power plants above ground until after we learn something about the hazards of major disasters. This in no way compromises our ability to derive potential benefits of the peaceful atom, if we need them.

#### What Do the Nuclear Energy Proponents Say in Refutation?

Having failed utterly to produce a single valid item of evidence in refutation of our estimates of the grave hazard associated with the

codified Federal Radiation allowable dose, the AEC and other nuclear power promoters have backed away to a very different position. They don't challenge the hazard estimates. Instead they promise not to deliver radiation to the public in amounts anywhere near the "allowable" dose. When asked why, then, do they oppose lowering the allowable exposures drastically so that we have a codified guarantee of their undoubted goodwill, they are generally tongue-tied.

Their disarray is truly a phenomenon to behold, but is readily understood when the complete and utter inconsistencies among their statements are studied.

Commissioner Theos Thompson has stated in a recent address:<sup>(5)</sup>

"As I have already indicated, it is likely that even by the Gofman hypothesis, less than one person per year would be in jeopardy from cancer or leukemia due to the presence of reactors compared with a sum total of 300,000 cancers per year from other causes."

And further Commissioner Thompson states:

"Instead of having 32,000 cases per year, we probably have statistically less than one extra case of cancer or leukemia as a result of the presence of those nuclear reactors now in operation, under construction, or definitely planned." Since Commissioner Thompson is very well aware that our estimate of 32,000 extra cancers plus leukemias is based upon an average exposure of the U. S. population receiving 170 millirads per year, we must reach one conclusion from Dr. Thompson. He is apparently willing to guarantee that the only source of AEC radiation is the reactor and to guarantee a dose delivery of 1/32,000 of 170 millirads from AEC programs. If Commissioner Thompson would so

willingly guarantee that U. S. citizens are not going to receive more than 1/32,000 of currently allowable dosage, one might ask why the AEC fights so desperately at the suggestion even of lowering the allowable dose to 1/10 of its current value. Many, many intelligent people ask me this all the time. All I can do is refer them to Commissioner Thompson.

But Commissioner Thompson provides the real giveaway in another part of his address -- and this everyone must understand to realize why the AEC and the nuclear electricity industry are stampeding construction of nuclear power plants. He states:

"However, it is important that we may recognize there may be at one time or another increases in these levels due to such things as a few faulty fuel pins in a fuel loading, a loss of stored coolant from some tank, holdup and discharge of effluents in batches (although this is covered by averaging over one year) or other factors..... If the State arbitrarily lowers the levels which are permissible in a given state until they are barely above normal levels, they run some risk that at some time they will either have to require the shutdown of this plant, or else find some graceful way to back off from their own regulation. Let me point out that if the plant shutdown does occur and it is because of a few faulty fuel pins, it would probably be many months before this plant could have new fuel fabricated, delivered to the site and installed. The likelihood is that the plant would be shut down for about a year by such a procedure."

Now, Commissioner Thompson has assuredly given away the real story. In effect, he assured us before of being able to guarantee 1/32,000

of current allowable exposures. To our knowledge, Maryland, as a state with the most sensible position, has suggested 1/100 of current allowable exposures. First Commissioner Thompson infers that reactors can keep releases 320 times lower than the proposed Maryland standards, but then he suggests the reactors might have to shut down even if allowed to release over a hundred times more than he suggests they will release. Now we really know why AEC fights lowering the radiation standards. As Commissioner Thompson admits, they want to keep reactors operating even when the releases rise due to faulty construction and operation!

And this is precisely why the stampede to nuclear reactors exists. If a geographical region can be made dependent upon nuclear power for a significant part of its day-to-day power requirements, then, when trouble occurs and the radioactive releases rise, as Commissioner Thompson suggests they may due to faults, the question can be put to the community, "Do you want to do without electric power?" Yes, the answer is very clear - place the community in a position where they must choose between high radiation exposure or loss of needed power. This is not a responsible procedure for a major public utility industry. But it is precisely what can happen if the nuclear electricity juggernaut is not stopped, as it should be.

We used to wonder about the vicious vituperation of atomic energy hucksters in response to our suggestion that the Federal Radiation Standards allowed too much radiation. In fact, when they slandered us, ridiculed us, and suffered apoplexy in declaring us "scare-mongers" and "scientifically indefensible", we even had a tendency to reply to their distortions, lies, and half-truths. But when we replied, we found our

letters reproduced by the carload, and from all over the country our nuclear friends informed us that our response to such distortions was being met with a determined campaign to label us "psychotics". This is so reminiscent of the Soviet technique of dealing with scientific dissent.

It occurred to us that there is really no necessity to answer the vituperations and the amazing comments emanating from atomic energy proponents when their parochial interests appear threatened. It is far better to let them rave on. Their comments answer themselves.

How, for example, did AEC Commissioner Ramey comment on our presentation of sufficient scientific evidence to lead the Secretary of Health, Education and Welfare to call for a total and sweeping review of radiation standards? Commissioner Ramey's answer was "Gofman is an opera star". That requires no further comment from us.

Recently, Mr. Ralph Nader pointed out that the Atomic Energy Commission treats anyone who raises questions about radiation hazards as a heretic.<sup>(6)</sup> There is no doubt at all that this is precisely how the AEC acts. We can verify this directly from the AEC severe reprisals against us and our work.

As usual, the AEC officials provide the answers themselves. I quote a recent address by Howard B. Brown, Jr., AEC Assistant General Manager<sup>(7)</sup>:

Mr. Brown states proudly:

"We have circumnavigated the globe many times over spreading the gospel about the peaceful atom".

Perhaps Mr. Nader, realizing that the AEC considers the peaceful atom a religious gospel, will be more tolerant in understanding the

AEC's persecution of heretics who refuse to accept the safety of radiation as a matter of religious faith.

The Fast Breeder Reactor and the Creation of a Plutonium Economy

Plutonium creation can justifiably be regarded as one of man's most immoral acts. It is surely regrettable that military preparations worldwide should have led to the manufacture of huge quantities of what may well be the most hazardous single radioactive substance imaginable. Plans to create a civilian energy economy, built around the use and transport of tons and tons of plutonium-239 (24,000-year half-life) not only may be properly regarded as extreme immorality, but also as an unmitigated nightmare for the human species. The fast breeder reactor program is a giant step forward in creation of this nightmare. It is, to me, unbelievable that serious consideration is apparently being given to an above-ground fast breeder reactor in Wyoming County, Pennsylvania. This is not only potential disaster for Wyoming County, but for a large part of the Eastern Seaboard for periods like 100,000 years.

Plutonium in the form of plutonium oxide particles is one of the most powerful lung cancer-producers known<sup>(8)</sup>. One-millionth of a gram is the order of amount required to produce lung cancer. Release of any plutonium upon the surface of the earth irreversibly increases lung cancer hazards for periods measured in 100,000's of years. Any mishap in handling of the ton quantities of plutonium associated with fast breeder reactors can compromise the future of countless generations of humans. Who assures that absolute perfection in such handling will exist? Who assures that fast breeders, notoriously less likely to be

safe than current reactors, won't have that one irreversibly disastrous accident?

One must truly ask what morality characterizes decision-makers who are even able to contemplate creation of a reactor economy based upon plutonium under circumstances where plutonium can gain access to the surface of the earth -- ever.

Unfortunately, what is required is a national prohibition of the creation of this nightmare. Pennsylvania cannot be protected from inane actions of other states, other than by joining all other states in a vigorous effort to restore some reason to the atomic energy scene.

But Pennsylvania can take two historic steps, and thereby provide an example of responsible membership in the human community.

(1) Declare a moratorium for five years on all new nuclear power reactors above-ground.

(2) Declare an injunction for an indefinite period against fast breeder reactors or any other nuclear activity associated with even the possibility of release of plutonium to the environment.

References

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- (2) Lederberg, Joshua "Government is the Most Dangerous of Genetic Engineers", The Washington Post, Sunday, July 19, 1970. (Based upon Professor Lederberg's testimony before Rep. Flood's House Appropriations Subcommittee).
- (3) "Plum Island Sounding News" "Plum Island Sound Project Would Save \$42.00 on Ipswich Tax Rate", page 3 (a full page advertisement), Volume 1, No. 1, April 1970 (Published by MEPP, Inc., 4 Elm Street, Ipswich, Massachusetts.)
- (4) Jordan, Walter H. "Nuclear Energy: Benefits Versus Risks", Physics Today, 23, (5), 32-38, May, 1970.
- (5) Thompson, Theos "Power Technology and The Future", A Briefing Conference for State and Local Government Officials on Nuclear Development", Columbia, South Carolina, May 21, 1970. See p. 10 for 1st reference; p 8 for 2nd reference; p 14 for 3rd reference. US AEC Release No. S-22-70, May 27, 1970.
- (6) Nader, Ralph "Letter to Senator Edmund A. Muskie concerning Issue of AEC Mistreatment of Scientific Witnesses before Congress and AEC Undermining of Scientific Freedom", dated July 5, 1970. (Available publicly through Senator Muskie.)
- (7) Brown, Howard C., Jr. "The AEC Goes Public: A Case Study in Confrontation". Remarks delivered as Assistant General Manager, U. S. Atomic Energy Commission. (See p 2) Delivery at Atomic

Industrial Forum's Topical Conference on Nuclear Public Information, Los Angeles, California, February 11, 1970. (Distributed by "INFO", Public Affairs and Information Program of Atomic Industrial Forum, Inc., 850 Third Avenue, New York, New York 10022.)

- (8) Geesaman, D. P. "Plutonium and Public Health". GT-121, Lawrence Radiation Laboratory, Livermore, California. Presented April 19, 1970 at the University of Colorado, Boulder, Colorado)  
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