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UNITED STATES ATOMIC ENERGY COMMISSION

extra

IN THE MATTER OF:

METROPOLITAN EDISON COMPANY

(Three Mile Island Unit No. 1.)

Docket No. 50-289

RETURN TO REGULATORY CENTRAL FILES ROOM 016

Place - Harrisburg, Pennsylvania

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C O N T E N T S

P R O C E E D I N G S

CHAIRMAN WATKINS: The meeting will be in order.

The first order of business this morning is to hear limited appearances. I would like to make one or two housekeeping announcements first, however.

As you know, this is Election Day, and the building is closed except for this room, and we are allowed here by special permission. I think it was necessary for everybody in this room to sign a ledger before he or she could get in.

The heat in this room is about 80 degrees. We have found the thermostat and we have turned it down. We hope it will cool off in due course.

We have made arrangements for the people making limited appearances to speak at this podium so that they can be heard by all concerned. We were told yesterday that some of the people in the back of the room could not hear the lawyers who were speaking up or the witnesses who were speaking in this direction.

Now, as a ground rule for limited appearance, I would say that the time for each one is limited to five minutes, and if a person wishes to file a written statement they are entitled to do so. If they don't wish to speak at all and just wish to file a written statement, they are entitled to do so.

If they have a statement which would run to 10 minutes they are entitled to make a summary which would be less

than five minutes and then file their complete written statement for the record.

We have quite a number of them, and some of the people involved have jobs and are already late for work, and I am going to try to call those people who have employment commitments first.

Also, Mr. Trowbridge has asked that each limited appearance person identify whether he is a member of either of the Intervenor groups, namely, the Citizens for a Safe Environment or the Environmental Coalition on Nuclear Power. So without asking each one separately, I am making a general announcement and if you are a member of either of those groups, please so state when you begin your statement.

MR. TROWBRIDGE: Mr. Chairman, that would include, I think, membership in any of the member organizations of the Coalition on Nuclear Power.

CHAIRMAN HASKINS: Very well.

We will start with Kenneth Woodside.

LIMITED APPEARANCE OF KENNETH WOODSIDE

MR. WOODSIDE: I appreciate the opportunity to address you. I simply have a short amount of material to present here, something that has disturbed me a little bit.

My name is Kenneth Woodside. I have had a short involvement with the Citizens for a Safe Environment, and I guess you should classify me as a member of that organization.

CHAIRMAN ERSKINE: Mr. Woodside, would you state your address, please?

MR. WOODSIDE: Fiddler's Elbow Road, Harrisburg, R.D. 5, Pennsylvania.

CHAIRMAN ERSKINE: Thank you.

MR. WOODSIDE: My first thought on hearing about nuclear power was that it was clean and added no emissions of radioactive materials to the environment. Then I became aware of a meeting which was held by officials of the Metropolitan Edison Company in Middletown that radioisotopes are indeed released into the environment from nuclear power plants.

I asked some questions and I found out that certain ones are familiar ones that are hazardous, I-131, Strontium 90, tritium, and these are ones that enter the food chain, enter our bodies, and present wounds such as cancer in later life.

But they are being closely scrutinized right now, and I think they will receive some attention from other people that will address you in the Limited appearances.

But I asked how much radioactivity was released, since I knew something about that from my work. I found out that from Unit 1, they expected over 3,000 curies per year to be released from Unit 1 into the environment in various ways.

On another question I found -- in response to another question, I found out that most of this would be gaseous release, and on further inquiry, I found that Krypton-85 would

account for most of that release into the air.

Now, I noted the company has further material and I received it. Limiting myself to a discussion of this one isotope, I would like to point out that the AEC has set limits on the exposure of people to this isotope which would account to 30 disintegrations per minute per cubic centimeter of air breathed in which per cubic meter would be 220,000 disintegrating per minute.

I think this is a high level. I am glad they are not asking the populace as a whole to breath that quantity. But then a little later I came across some data published in a journal called "Nature" which shows the worldwide contamination of the air by this pollutant, and here is the years, here is 1959, over at this corner.

Could somebody hold this up for me, please?

This is simply plotting the year across this axis and the specific activity of Krypton-85 up here. Here is zero, and zero is quite meaningful in this case because zero indicates no contamination from this manmade isotope. This has not occurred in nature. So it has increased from zero at some year prior to 1959 due to nuclear testing and other sources, but it has increased.

The Nuclear Test Ban Treaty went into effect here. A couple of countries are still testing. So you have increases and increases.

POOR ORIGINAL

I think the sources here are nuclear power generation, etc. I think the recycling and reprocessing of nuclear fuel is another important source. The point is here that it has increased relatively linearly. The red dots here are measurements made in Europe and various locations, and the blue dots are made in the United States.

This continues to increase. I think at some point we are going to have to recognize that this is an atmospheric pollutant.

I will leave this here if anyone wants to look at it later. I should also point out that this isotope has a ten-year half-life, more than ten years, in fact -- 10.6 or so. So after we release this into the atmosphere, it will be around for a while.

At Unit 1 of the Three Mile Island Plant, that will release 5,550 curies per year on the design basis of the plant.

The last thing I would like to point out is that a curie is a large amount of radioactivity, even when diluted into the entire atmosphere. It used to be defined as a unit of radioactivity equivalent to that associated with one gram of radium. So 5,550 curies is a large amount, and I [illegible] that the nuclear fuel reprocessing will contribute even larger amounts of this atmospheric pollutant.

So these are [illegible]

should come under consideration by your Licensing Board.

Thank you.

I would like to also enter in the record this paper by Schroder, Munnich and Ehhalt. Ehhalt works -- or at the time the paper was written he worked at the National Center for Atmospheric Research in Boulder, Colorado.

CHAIRMAN HASKINS: Is there any objection to entering this paper in the record?

MR. TROWBRIDGE: No objection.

MR. GITNER: No objection.

CHAIRMAN HASKINS: Very well.

(The document was received by the Board and will be available in the Public Docket Room in Washington, D. C., for inspection.)

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MR. WOODSIDE: Does anyone have any questions?

CHAIRMAN HASKINS: I am sorry, we don't take questions of limited appearance people.

Thank you, Mr. Woodside.

It is the Board's intention to call for limited appearances on the basis of the dates of the letters on which we received the request. However, if there is someone making a limited appearance here this morning who has a pressing employment obligation, if he or she would raise their hand we can take him or her out of turn.

I see none. I therefore will call on Virginia Southard. I don't know whether it is Miss or Mrs.

LIMITED APPEARANCE OF VIRGINIA SOUTHARD

MISS SOUTHARD: Miss Southard. I have a few extra copies of this, if you would like them.

CHAIRMAN HASKINS: Miss Southard, the logistical arrangements we made were so people in the back of the room could hear better. Perhaps you could find a chair over in that corner which would sort of face the audience as well as the Board.

MISS SOUTHARD: All right.

My name is Virginia Southard. I am the Chairman of Citizens For A Safe Environment in Harrisburg. I would like to begin my statement with a quotation from the Constitution of the Commonwealth of Pennsylvania.

"The people have a right to clear air, pure water and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's natural resources are the common property of all the people, including generations yet to come. As the trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people."

As a citizen's organization concerned about the preservation of a safe environment for ourselves and future generations, we call on this Board to consider most seriously the issue of nuclear power production and the public good.

We have known for many years that about five to ten percent of all illnesses with a genetic link are a result of natural background radiation. The proponents of nuclear power frequently try to allay public concern over radiation emitted from power plants by saying that the plants will add only a small percentage of additional radiation to background radiation, as if this somehow lessens the seriousness of the added exposure.

We believe that any additional burden of illnesses or deaths must be considered wrong, indeed immoral, simply to increase the amount of electricity available to a society that has now tried in any way to reduce its insatiable demands.

In the past several years, an increasing body of evidence has been gathered to show a direct correlation between

the amount of radiation exposure and the degree of damage to be expected as a result of the exposure. It has also become increasingly evident that in our society, some of our citizens are more sensitive to this exposure than others. We have learned that the tiny, developing fetus and the newborn infant are far more sensitive than adults to this damage.

In addition to this group, recent studies at the Roswell Institute in Buffalo, New York, have shown yet another segment of society that is more vulnerable to exposure from low level radiation than adults. An analysis of data on 298 children with leukemia and 813 random sample controls shows that there are two subgroups in the population, susceptible and non-susceptible.

Exposure to low level radiation during pregnancy produc produces little increase in risk of leukemia in the non-susceptible subseries. However, the same radiation exposure can increase risk almost ten times in subseries with a relatively high proportion of "susceptible" subjects.

When we consider that in the lifetime of most human beings, in addition to living with the radiation in our natural environment we must rely on X-ray exposure for medical and dental needs that are frequently necessary to our [illegible] a good society it is cruel and unjust to force some citizens to live in close proximity to radioactive emissions from nuclear power stations.

We know that most citizens are unable to leave the

leave the areas where they have resided all their lives and own property, so there is no real choice for them but to remain close to large power facilities, some of them having as many as four reactors at a single site. What peace of mind can individuals, particularly members of families who are already the unfortunate victims of genetic disorders, have who are living in such areas? How can we screen and protect our "susceptible" children from drinking milk containing radioactive iodine?

The very serious, unanswered questions related to the movement and disposal of radioactive wastes and the unproven safety of large nuclear reactors has done great damage to peoples' sense of security and safety.

We believe the Atomic Energy Act of 1954 has abrogated the rights of citizens to a safe and healthful environmentand that there must be a ban on the further licensing of these plants until the Constitutionality of the law is tested.

We realize that it is not in your power to change the Atomic Energy Law but we believe it is in your power and that it is your duty to assure, as far as possible, the safe operation of this plant and the inclusion of the latest type of system available to exclude radioactive emissions to our environment.

We also call upon the Applicants to consider our concerns for the health and welfare of citizens of the Harrisburg area and include the latest technology and equipment

available to reduce the radioactive effluents released from the plant.

Thank you.

CHAIRMAN HOSKINS: Thank you, Miss Southard.

Thomas Williams?

MISS SOUTHARD: He may not be able to be here. He phoned me and said something had come up. There is another person, Mr. Haskins, who is ill. Mrs. Northam will not be here.

CHAIRMAN HOSKINS: The Board will make an opportunity available later for those two persons, if possible, to make a limited statement at a later time.

Steven Shelly?

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LIMITED APPEARANCE OF STEVEN SHOLLY OF CAMP HILL, PA.

MR. SHOLLY: Mr. Chairman and members of the Board, ladies and gentlemen: My name is Steven Shelly. I am a resident of Camp Hill, Pennsylvania, and a Junior at Shippensburg State College with a major in Earth-Space Science and a minor in Environmental Education. I am also a member of Citizens for a Safe Environment.

I cannot begin within the time allotted to adequately express my views on the Three Mile Island Nuclear Station Unit 2. For this reason I have prepared a more detailed written statement which will better express my views on this matter. I ask that the Board consider both my written and oral statements in its deliberations.

I have several major objections to the licensing of Three Mile Island Unit 1, not the least of which is my belief that the Atomic Energy Commission will be violating Section 1, Paragraph a of the Atomic Energy Act of 1954 as amended. The provision states that it is the policy of the United States that "the development, use, and control of atomic energy shall be directed so as to make the maximum contribution to the general welfare, subject at all times to the paramount objective of making the maximum contribution to the common defense and security."

The licensing of Three Mile Island, Unit 1, clearly could not be construed as making "the maximum contribution to the common defense and security." To the contrary, the licensing and operation of Three Mile Island, Unit 1, represents one of the most significant defense vulnerabilities in the country.

If this nation should come under attack, it would take only a direct hit on Three Mile Island to effectively destroy most of Pennsylvania and parts of Maryland, and possibly sections of New Jersey and Delaware as well.

Such an attack capability is easily possessed by any country or organization with the requisite financial resources. Now the very existence of Three Mile Island as a nuclear power station compromises the security and safety of a significant portion of this country. This situation is clearly

contrary to one of the basic premises of the Atomic Energy Act of 1954 and is reason enough for this Board to recommend the denial of an operating license to the Applicants.

However, there are further conditions which serve to amplify the necessity for denying an operating license at this time. The reliability of the Emergency Core Cooling System is certainly subject to doubt. Clearly, as a result of the recent developments in the ECCS Rulemaking Hearings, there is need for considerable amounts of research and testing in the area of ECCS reliability. The lives of millions of people depend on the proper functioning of this critical safety feature in the event of a loss-of-coolant accident. If there is the slightest doubt about the proper functioning of the ECCS, and indeed there should be, then the operating license request must be denied.

There is also the question of radiation exposure, both from routine plant emissions and from accidents. The current controversy over the effects of low-level radiation must be cleared up beyond doubt before this plant is licensed. There is a clear need for an interdisciplinary committee to conduct an epidemiological study on the effects of low-level radiation -- such a study should be performed as soon as possible and before this plant is licensed.

Caution, in general, is the beginning of wisdom. Until the risks involved when licensing this plant are fully investigated and clearly delineated, the operating license

for Three Mile Island, Unit 1, cannot be approved. At the very least, this course of action does not treat human survival as a true good.

Thank you.

CHAIRMAN HASKINS: Thank you, Mr. Sholly.

MR. TROWBRIDGE: Mr. Chairman?

CHAIRMAN HASKINS: Is there any objection to inserting this document which amplifies Mr. Sholly's remarks in the transcript?

MR. TROWBRIDGE: No, Mr. Chairman.

I did not catch whether Mr. Sholly was a member of the Intervenor.

MR. GITTER: Yes.

CHAIRMAN HASKINS: He stated he is a member of the Citizens for a Safe Environment.

MR. TROWBRIDGE: My apologies.

CHAIRMAN HASKINS: This will be accepted.

(The document was received by the Board and will be available in the Public Docket Room in Washington, D. C., for inspection.)

CHAIRMAN HASKINS: John F. Simon.

XXXX LIMITED APPEARANCE OF JOHN F. SIMON, MECHANICSBURG, PA.

MR. SIMON: My name is John Simon, and I am Co-chairman of the Citizens for a Safe Environment located here in Harrisburg.

Members of the Board, ladies and gentlemen, I stand before you today as a private citizen speaking to you and appealing to your common sense.

I am a registered professional engineer in the state of Pennsylvania and the state of Maine, and have spent the better part of four years educating myself about atomic energy. I still hold a certification as a radiological monitoring instructor issued by the Maine Civil Defense Advisory Committee.

I say these things only to help dispell the opinion that opponents are uninformed and misguided people. To better understand these hearings it is necessary to recognize the most basic concerns about an atomic plant. These contentions to me are that the atomic plants are truly unsafe because of their potential for a catastrophic accident, and that the radioactive effluent from routine plant emissions are unduly injurious to the public.

An atomic plant has the potential for what the AEC calls a Class 9 accident. Incidentally, these Class 9 accidents are nowhere described in present environmental impact statements. The damages from an accident of this type are not known accurately but the estimates have been frightening.

The 1957 Brookhaven Report indicated that a plant of approximately one-quarter the size of Unit 1 would kill approximately 3,400 people and cause $7 billion in property damage.

Now, while I is four times larger than this one according to the map that I have, it is only nine miles from the Harrisburg City boundary. The 1965 update of the report has not been released to the public except for personal inspection in Washington. In fact, its existence was only recently admitted.

No knowledgable person denies that the potential for such a catastrophic accident is inherent in all present atomic fission plants. However, the AEC feels that the probability of such an event is so remote that they find it acceptable to expose the public to this risk. They have taken upon themselves, without the benefit of full public disclosure and debate, the authority to subject society to this risk.

Opponents, on the other hand, believe that these accidents are not remote, and that the AEC has no right to make these decisions. What can the public do when confronted with diametrically opposite opinions? The best answer to me was given recently by Senator Mike Gravel in his September 28, 1973 newsletter. He proposed the use of the doctrine of comparative consequences.

This doctrine states that when in doubt, the prudent course of action would be to follow the advice of that group whose course of action, if wrong, would involve the least consequences.

If the AEC would fully disclose and discuss the data

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on the magnitude of a class 9 accident, the public using the doctrine of comparative consequences would see that common sense dictates an abandonment of atomic fission for electrical generation.

You may be asking yourself now, what is wrong with a government and a society that allows such a situation to develop? A very good question indeed, and one whose answers are perhaps numerous and subtle.

First of all, it is important that we recognize that all of us are guilty to some degree of the apathy, the wastefulness and the neglect that are the root causes of our problem. To progress to a solution, furthermore, it is vitally important that we recognize that, just as within man are the causes of his problems, so also within man are to be found the solutions.

I feel that today in our country we have a sinister philosophy gaining more and more strength. I think it expresses itself best in the belief that if the majority of the people have a need, be it ever so trivial, it is acceptable to violate the rights of the minority to meet that need.

Now, society in this country, indeed, can require conformance of the minority for the common good. This, however, requires that laws of conformance cannot be imposed which violate the Constitutional rights of any person.

The too long unchallenged procedure of a few

polluting the common resources of all for the benefit of some without the consent or proper compensation to the public is another example to me of justice denied.

We must remember that what may be more profitable for some right now may not be the cheapest for all of us later. Such is the case with the AEC, the utilities and the reactor manufacturers in developing an industry which I feel threatens our lives, our health, our property, and the very genetic heritage of mankind without the consent of the public.

Never in the history of mankind has there been a greater potential for damage to man's genetic heritage than atomic fission. Shelter is taken by proponents behind the security of high-sounding and vague mathematical computations on the probabilities of accidents, while the flight from common sense continues.

Murphy's law, which implies that what can happen will happen, is ignored by assuming that man will suddenly achieve perfection. We stand in disgust of past societies that practiced human sacrifice, while we fail to recognize the indirect but equivalent human sacrifices practiced by today's society. Whatever the name was of their gods, we know the name of the god of our society. Is it not the god of convenience?

Amid all our problems we can still rejoice, for I feel and everyone realizes that alternatives to atomic fission are available. Atomic fission resources are truly insignificant,

when compared to those of solar energy and fusion. Concerning the amount of atomic fission resources, let me quote from a book entitled "The Energy Crisis" by Lawrence Rocks and Richard P. Runyon. On page 62 the authors state, "The awareness will eventually dawn that even nuclear fission (uranium) energy is a temporary source of power and cannot even figure into our immediate problem of the next thirty years."

Further along on page 69 they state, "The energy bank of U. S. uranium is not as large as many people think. The energy equivalent of U(235) is only equal to that of our oil reserves."

Concerning the breeder reactor, the authors state on page 69, and I quote, "If the breeder reactor is perfected and on stream in the mid-1980's, as the present development program calls for, then the energy bank of U(238) would be tappable. It would at best be double our coal reserves."

Does this sound like the infinite energy source we were all led to believe atomic energy was?

On the brighter side, a December, 1972 report by the National Science Foundation and NASA titled "Solar Energy as a National Energy Resource" stated on page 1 that, and I quote, "Under the same assumptions of a ten percent conversion efficiency and U. S. average solar incidence, in 1969 the total electric energy consumed in the U. S. could have been supplied by the solar energy incident on only 0.14 percent of the U. S. land area."

Ladies and gentlemen, this is only 1.4 acres per thousand. The bonus is that this energy source is as long-lived as the sun itself.

I ask the Board in the name of humanity to deny an operating license for Unit 1 at least until successful full scale ECCS tests are completed. I make this appeal to the public, if we can't defeat the Goliath of atomic fission directly, as it appears may be the case, then let us all dedicate ourselves to work diligently for energy alternatives that will make atomic fission obsolete, undesirable, and the shortest lived method of electrica generation in the history of mankind.

I pray that we will allow the spirit of God, best personified in the person of Jesus Christ, to inspire us to make those changes in our attitudes necessary to build a world where the value of a human life is put above a benefit-cost ratio.

I thank you, ladies and gentlemen, and I thank the Board for this opportunity to appear at the hearing.

CHAIRMAN HASKINS: Mr. Simon, I have two questions. Where do you live in Pennsylvania; not your street address, but what town?

MR. SIMON: I live in the Borough of Mechanicsburg in Mount Allen Heights. It is about, I would say, nine-and-a-half to ten miles due west of the plant.

CHAIRMAN HASKINS: The second question. Some of the

lawyers in this room come from Maine. I notice you say you are a licensed engineer in Maine. Where do you come from in Maine?

MR. SIMON: South Berwick, sir. I knew you would notice.

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CHAIRMAN HASKINS: Gilbert Freedman.

LIMITED APPEARANCE OF GILBERT M. FREEDMAN,

405 Sample Bridge Road, Mechanicsburg, Pennsylvania.

MR. FREEDMAN: I am Gilbert M. Freedman, 405 Sample Bridge Road, Mechanicsburg, Pennsylvania, 17055.

It was an unseasonably hot evening that Monday --

CHAIRMAN HASKINS: Just a minute, Mr. Freedman.

Would you state whether you're a member of either of the intervening parties?

MR. FREEDMAN: No, sir. I'm not a member of either group.

It was an unseasonably hot evening that Monday in June, 1976. Three Mile Island No. 1 was perking along at 95 percent capacity. After the usual startup problems of the years before, the operating crew was quite pleased with the reliable, steady performance of No. 1. The sky was hazy with a wind blowing gently out of the southeast at 10 miles per hour. An Allegheny 727 had just been cleared for takeoff on runway 13 at Harrisburg International Airport in Middletown. After alignment on the runway, and engine run-up, brakes were released on what was to be its last take off. It was not until the aircraft was well airborne that emergency lights began to glow red. First to go was the primary and emergency hydraulic system. Continuing to climb, the plane began a slow bank to the right. With that, complete simultaneous

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flameout occurred. Pitching over, still at climb-out speed the plane plowed into the east side of the transformer substation between Three Mile Island Units 1 and 2, effectively severing the plant from the system load.

The operating crew at Three Mile Island had no idea what was happening and less idea of what was to happen in the next minutes. For reasons that could not be established by the investigation board, control rods were not reinserted automatically with the instant demand truncation. It was theorized that the longitudinal component of the ground shock wave shifted the rod holder adequately to lock the rods in their high-energy position.

The over-temperature condition would have been easily controlled had it not been for the locked rods. With boiling away of prim ary coolant the emergency spray and cooling systems responded only a split second late.

For, in that split second, adequate fuel had melted together to increase the reactivity to the point that there was no chance of containing the reaction.

With the dowsing of water came a tremendous buildup in the temperature and pressure of the resulting steam. With a mighty roar the containment vessel split. A shockwave thousands of times more violent than the explosion from the aircraft crash only minutes before flattened trees and structures within several miles of the plant, quickly killing

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the plant operators, several bass fishermen west of the island and several hundred people that lived nearby. The explosion was so violent a 100 lb. block of concrete, with steel liner intact, a fragment of the containment structure was to be found on the lawn of the Capitol Mall several days later. Ejected with the steam that caused the reactor building failure was a fine dispersion of radioactive dust abraded from the uranium oxide pellets which had peppered and rebounded from the inside of the containment structure at thousands of feet per second like so many shotgun pellets.

But the larger portion of the fuel had melted into a pool at the bottom of the reactor. Indications were that the explosion had ruptured the containment vessel and cratered the island in such a way that river water gravity flowed onto the remnants of the core. Observers in York and Lancaster for years would speak with awe of the roar and column of steam, fed by river water and vaporized rock, which continued to eject from the site for two days after the accident. Only after that time had the molten, highly radioactive mass eaten into the earth an estimated 1,000 feet, and the resulting well collapsed on top of it, effectively sealing off the river from continuing invasion.

A half hour after the steam explosion the wind had carried the slightly luminous highly radioactive cloud over Middletown and Highspire. In an hour it had reached the

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Capitol. Steelton, Lemoyne, and New Cumberland were already enveloped. In another half hour 100,000 people had been exposed to the death-dealing radiation as far northwest as Erola, Summerdale and Rockville. Paxtang and Penbrook had also been exposed. By that time the news of the accident had been broadcast via the media to those who were listening to their TV and radios. Because of the violence of the accident little was known about the seriousness of the episode or the seriousness of the radiation hazard until the cloud had progressed far beyond Amity Hall and Duncannon and was as far north as Millersburg.

The inversion that existed that evening, and low wind, had made the accident particularly damaging to the Harrisburg area. Local authorities had difficulty grasping the magnitude of the accident, let alone providing mobilization leadership.

Hysteria and panic were common throughout Pennsylvania. No one was in a position to predict where the cloud would dissipate. Weeks later the public would know that it had continued in a northwesterly direction rendering uninhabitable for weeks cities as far away as Erie and Buffalo.

Back in Harrisburg, at first the people were only aware of a distant rumble or perhaps a reflection against the early evening haze. Those that were to die soon suffered nausea and a strange weakness. Within days they would be gone.

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Others would experience milder manifestations of radiation sickness such as losing their hair and skin splotches. Leukemia and other cancers would not manifest themselves for 20 years after the accident.

Through no fault of their own except ignorance, 100,000 people would be forced to vacate for the rest of their lives the homes they knew and loved. A vast sector centered on Harrisburg and radiating northwest towards Erie would be rendered unfit for agriculture and unfit for human habitation for a year. How strange the Penn State University must have looked with no students.

Impossible? Perhaps. I ask myself, "Why am I here today testifying in opposition to the initiation of operation of a nuclear power plant built on some of man's highest technology, built by some of the best professionals and by the finest industry that could be mustered anywhere in the world?" I am here because I feel an obligation to ask you to feel an obligation to be completely frank with the public in admitting that no system can be completely safe. In making the public aware of this, encourage it to arrive at a rational decision on just what hazard it is generally willing to risk for the convenience of electrical power generated by nuclear energy.

I am most alarmed by the continued bland assertions of nuclear agencies that nuclear stations are "completely"

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safe or serious accidents "unthinkable." You and I know that this cannot be so, and you and I fully realize that by the very virtue of the way in which engineering is done we run a risk.

Assigned a project, an engineer uses the best judgment he can to essentially "hand-wave" away those problems which he honestly believes are the least important. He then devotes 90 percent of his effort to analyzing the part of the job which he regards as the most critical. I am not worried about this latter portion of the job. It is the part that was hand-waved away, of which I am most concerned, cloaked in such catch-alls as design assumptions or specifications imposed by the AEC or the utility.

The steam vent accident at Surry, Virginia, a highly conventional failure, cost the lives of two men there. The failure was corrected by simply welding four reinforcing fins to anchor the steam valve nozzle to the vent. If such an obvious failure mode were not identified beforehand, is it not conceivable that other unanticipated failures are possible in the more sophisticated nuclear portions of a plant?

A safe endeavor is made that way, unfortunately, by accident and blood-bath. For example aviation, if it may be considered safe today, is what it is because of the lives that were given in accidents and the effort of the

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investigator in sifting through the wreckage and the data to determine what went wrong. By feeding this back into future design and future operation the field was gradually made safer. With nuclear power, unfortunately, we cannot afford this luxury. We are forced to anticipate all modes of failure and design around all conceivable accidents because one accident would be so disastrous.

We are inexperienced designers and operators learning to fly as we learn to build.

You may ask, "How is it conceivable to stop the plant after such an investment has been made?" I ask you, "How is it conceivable to allow such an endeavor to go forth when the consequences can be so grievous." It was not stopped before, because the public was not aware, as they still are not aware, of the hazards, of the dilemma into which we are allowing ourselves to slip.

I have only cited one mode by which a nuclear plant such as Three Mile Island can wreak havoc on the peaceful lives that we now enjoy here in central Pennsylvania. We are also concerned about low level radiation effects, somatic, and even more seriously, genetic, about which we know very little.

I call upon you, gentlemen, to place an indefinite moratorium on these doomsday machines. Failing this, I ask you to remove the limitations of the Price Anderson Act by

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insisting that the government form an insurance pool which will at least provide adequate compensation by the many who will enjoy the electrical power to those wronged by nuclear accident.

CHAIRMAN HASKINS: Thank you, Mr. Freedman.

William Whittock?

LIMITED APPEARANCE OF WILLIAM B. WHITTOCK, BOX 234, ETTERS, PENNSYLVANIA, 17319.

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MR. WHITTOCK: Members of the Atomic Energy Commission, ladies and gentleman, my name is William B. Whittock.

I live in the Borough of Goldsboro, and I represent myself.

I live within one mile of the Three Mile Island plant, and I am concerned about three problems in that operation, and I request that the following provisions be met prior to the licensing for operation:

1. That noise pollution in the vicinity of the plant be kept to a reasonable minimum in line with Pennsylvania Department of Environmental Resources and EPA standards.

2. That some local method of evacuation be planned with provisions for carrying out same in the event of a harmful radioactive release accident at the plant.

Now, I'm concerned about my family getting out in the event I'm not there. I'm not concerned about myself, but

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I am concerned about my family. And, as a matter of incidence, there are about 500 people that live in the Borough of Goldsboro which is within a mile or a mile and a half of the Three Mile Island plant.

3. That the operation of the plant be curtailed during temperature inversion periods where excess fogging or icing conditions will be created by heat delivery into the atmosphere.

I will say that that area is subject at the present time to a lot of fog and foggy conditions during certain periods of the year, and I think that's a very important consideration, and I thank you very much.

CHAIRMAN HASKINS: Mr. Whittock, the Board has two questions.

One, are you a member of either of the intervening parties?

MR. WHITTOCK: No, sir. I'm just representing myself.

CHAIRMAN HASKINS: Thank you.

And when you talk about noise pollution, are you talking about it during the construction stage of the plant?

MR. WHITTOCK: Well, sir, I really can't answer that. I know that there's a lot of noise down there. I think that when they turn the water on in those aerators or coolers there's a terrific amount of noise, and I know some nights

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we have had to keep our windows closed because of the racket coming across the river.

CHAIRMAN HASKINS: Thank you.

Paul Gehris?

VOICE: Mr. Gehris was unable to be here. Can somebody else read his statement?

CHAIRMAN HASKINS: Well, let's skip him for the time being.

We'll go on to somebody else.

Mary Louise Clouser?

(No response.)

Ernest Sommerfeld?

(No response.)

Milton Lowenthal?

MR. LOWENTHAL: Yes, sir.

LIMITED APPEARANCE OF MILTON LOWENTHAL,

5017 Haverford Road, HARRISBURG, PENNSYLVANIA.

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MR. LOWENTHAL: My name is Milton Lowenthal. I'm Vice President of the Harrisburg Area Chapter of the United Nations Association.

I'm here to join with others in protesting the operation of Three Mile Island plant.

CHAIRMAN HASKINS: Mr. Lowenthal, let me interrupt you. Where do you live? What town do you live in?

MR. LOWENTHAL: I live at 5017 Haverford Road in

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Harrisburg.

CHAIRMAN HASKINS: And are you a member of either of the Intervenor groups?

MR. LOWENTHAL: I am not.

I have a prepared statement; but, as a preliminary, I'd like to make several remarks. As I drove to the meeting-place this morning, I could not help but think of the experience we had last year during the flood. I was a flood victim. I now live in the outskirts of Harrisburg on high ground away from the pollution, urban pollution, and breathe clean air, relatively clean air.

After the flood, there was a great deal to do about land use planning to eliminate residences in flood-prone areas; and, here today, we are considering the problems involved by man-made pollution, so to speak, of our entire living environment.

There is no way of people finding a place to live that is not subject to the dangers inevitable according to many scientists in nuclear power production.

The hearings being held today affect all of us. The children of those sitting on the podium will be affected as much as those of us who appear to speak today. There seems to be an indecent haste in proceeding with something about which there is so much uncertainty and so much a possibility of danger and damage to our own civilization.

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With that introduction, I'd like to read this brief statement.

These views are presented on behalf of the Harrisburg Area Chapter of the United Nations Association of the United States of America. Our membership consists of individuals who support the United Nations; and, as indicated below, includes as affiliated organizations eleven long-established community groups that identify with U.N. goals.

These are the American Association of University Women, Harrisburg Branch; Catholic Diocese Division of Community Affairs and Human Relations; Council of Churches of Greater Harrisburg; Greater Harrisburg Area YWCA; Harrisburg Center for Peace and Justice; International Ladies Garment Workers Union, Central Pennsylvania District; League of Women Voters, Harrisburg Area; National Council of Jewish Women, Harrisburg Section; Soroptimist Club of Harrisburg; Unitarian Church of Harrisburg; Women's International League for Peace and Freedom, Harrisburg Branch.

Our members are deeply concerned about the possible dangers from accidents which may occur in the handling of radioactive materials and wastes in connection with the operation of the Three Mile Island Atomic Power Plant.

We are concerned because of the possible consequences, the loss of life and the destruction of property, that could occur in our area. We are uneasy furthermore because

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we do not believe that atomic power plants are safe and we are not convinced that atomic power is necessary to meet our energy requirements.

Regretfully, the destructive force of atomic energy has been amply demonstrated, but its uses for generating power and for other peaceful purposes are still in doubt. We therefore feel it is premature to attempt to apply this untested technology, using human beings as guinea pigs.

We are not alone in our beliefs. We note that Sweden has slowed down its development of atomic power facilities until they are proved to be safe and efficient. The October 25, 1973 spill of radioactive liquids at the Shippingport atomic power plant bears out the predictions of concerned atomic scientists that serious accidents are inevitable.

And on November 1, 1973 the Atomic Energy Commission announced leakage of radioactive material in an October 20, 1973 accident at the Oak Ridge, Tennessee Installation.

But we are also concerned because we see our immediate energy needs as part of mankind's energy problems. We recognize that although it behooves each nation to deal with its own needs, global aspects must be considered. No nation has the right to defile the world's atmosphere.

We live at a time in history when technology and scientific developments are being applied at a breakneck pace,

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far beyond our ability to understand their implications and, in some instances, their consequences. As some for-instances, there come to mind the marketing of detrimental drugs, dangerous pesticides, fire-prone plastics, unsafe cars and, of course, atomic weaponry.

A current U.N. Association Policy Panel is engaged in a study of The Future United Nations Role in Science and Technology. Its purpose is "to consider the new areas of scientific development most likely to pose far-reaching problems for international public policy and to have the greatest implications for international institutions, especially those of the U.N. system." It is evident that we are just beginning to define the locus of decision-making in many technology-related areas that are already beginning to move from the national to the international sphere.

We also live at a time in history when nations are becoming more interdependent, to a great extent because their technological and other problems do not stop at geographical boundaries. It is not necessary at this time to detail all mankind's problems that require global solutions. They are numerous and they are interrelated. They range from the currently dramatized energy resource problem to the population explosion, and involve consideration of all the social and economic factors that determine the optimum number of human beings that can subsist and lead fruitful lives

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within the limits of space ship Earth.

We believe our energy needs can be met without relying on atomic power, but to do so requires changing our priorities. A reasonable approach to meeting our energy needs would involve:

1. A moratorium on construction of all atomic power plants, until presently operating plants prove to be safe.

Crash research programs to develop safe and clean sources of energy, e. g., solar, hydro-electric, thermal, wind.

3. Making more efficient use of available energy resources, improving transportation, power, lighting and heating systems.

4. Eliminating wasteful and non-essential uses of energy and resorting to rationing where found necessary.

At this point in time, we believe it is of utmost urgency that confidence in government be restored so that all of us feel our government is operating for the benefit of the people, as was originally intended. Your serious consideration of our views will help restore that confidence. Great caution must be exercised when you will be making crucial decisions that could affect the lives of generations yet unborn.

It is always prudent to "look before we leap."

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We can learn to live with less, but let's live!

CHAIRMAN HASKINS: Thank you, Mr. Lowenthal.

MR. LOWENTHAL: Thank you.

CHAIRMAN HASKINS: That concludes the statement, the limited appearance statement of persons who have made requests to the Board to be heard with the exception of five persons who do not appear to be here today.

The Board will endeavor to schedule them later if they so desire; and, if they will communicate with the Board when they will be made available, we will endeavor to give them an opportunity as the week progresses.

MR. DAVENPORT: Sir, Mr. Braunstein was advised by the Board that he would be called upon to make a limited appearance, and I'd like to make a limited appearance myself.

At the AEC hearings in York, it was not necessary to write in in advance.

CHAIRMAN HASKINS: Well, we have no requests -- what is your name?

MR. DAVENPORT: John Davenport.

CHAIRMAN HASKINS: Would you like to make a limited appearance now, Mr. Davenport?

MR. DAVENPORT: Yes, sir.

CHAIRMAN HASKINS: Very well, the Board would like to hear from you.

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LIMITED APPEARANCE OF JOHN DAVENPORT, 4299 ORCHARD ROAD, YORK, PENNSYLVANIA.

MR. DAVENPORT: I'm not sure why Mr. Trowbridge would like to know whether I'm a member of any of the groups involved in the controversy. I think we should have learned from the McCarthy hearings that the truth of a person's statement has absolutely nothing to do with his organizational affiliations.

I am not a member of any of the intervening parties, but I will tell you those organizations that I am a member of. They are the American Nuclear Society, the Atomic Industrial Forum, the Republican Party, the York Area Chamber of Commerce, the York Opportunities Industrial Center, York-Lancaster Data Processing Management Association, the ACM and the League of Women Voters.

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CHAIRMAN HASKINS: Mr. Davenport, would you please advise the Board, are you a member of any of the Intervenor organizations?

MR. DAVENPORT: No, I am not a member of the Intervenor organizations.

CHAIRMAN HASKINS: Would you state your name and address, please?

MR. DAVENPORT: John Davenport, I live in York Pennsylvania, 4249 Old Georgia Road. This is approximately 11 miles south of the nuclear power plants.

I represent my wife Carol, and my daughters, Laura and Abby.

I have three simple questions which are relevant to the Board's inquiry. They involve insurance, transportation, and low-level radiation.

Question No. 1: Is the plant and equipment within the site boundaries estimated at $825 million insured for full value against loss from nuclear accidents?

My own home is not insured against loss from nuclear accidents. My Homeowners Policy has an exclusion clause which says this policy does not insure against loss by nuclear radiation or contamination whether controlled or uncontrolled, et cetera.

If it is true that it is insured, how is it possible that the public is only insured for $560 million,

a small fraction of its real value; and then the plant, if it is insured, is insured for more than $560 million by these private insurers.

I am a private, small businessman. If I was given a choice of moving to an area where there would be certain losses that I would never be insured against, and another area which is far away from a nuclear plant, it would not occur, where I wouldn't need to worry about these losses and not recover against them, I would move to a place where I could always be sure that my investment in equipment would be covered. If there isn't a nuclear power plant there, then there isn't any loss.

I believe it is important that we should consider this kind of effect of a nuclear power plant. Now, if the plant is not insured to full value, it certainly is not fair to the ratepayers and stockholders of the company for them to assume such a huge risk.

The second question: Are truck shipments of spent nuclear fuel to be accompanied by an escort vehicle?

The AEC has indicated in this fine document (indicating) right here that the nuclear waste cask, in event of an accident, will be sufficient protection to the public from transportation dangers.

Now, if it is true that this 20 or 30 ton cylindrical cask will not rupture during a 110 mile per hour impact

with a steel shipment traveling in the opposite direction during a crossover accident, then an escort vehicle must be present to deal immediately with the tremendous havoc which will result from the impact from dissipating the impact energy.

The crushing, bending, and rupture of steel in an accident of this type limits the scope of the accident. If the cask does not absorb any impact energy by crushing, bending, or breaking, then it will have to be dissipated by crushing other vehicles, guardrails, or bridges.

Now, if the cask does rupture, then the advantage of the presence of the escort vehicle is obvious. The Armed Forces have escorted nuclear shipments for years, and they will continue to do so. If they think it is necessary and important, so should the Atomic Energy Commission.

The Board should require an escort vehicle for all highway shipments of spent fuel, and police guards for all rail shipments at grade crossings and switching yards.

The third question: How can I calculate the amount of dose which I will be receiving from these plants unless I am given hour-by-hour radiation release data as well as wind direction, velocity, and atmospheric stability data?

The state of the art in personal monitoring devices is such that only the human body can accumulate enough

low-level radiation to indicate an abnormal dose. Unfortunately, the human body will not tell you for 20 years when you will develop leukemia or some other type of cancer; thus, in order to tell before I develop cancer when I am getting more than my share of radiation, I must calculate it or it must be calculated for me.

The information on releases and wind direction, velocity and temperature of the atmosphere at different levels must be constantly digitized and reported on magnetic tape for input to a computer calculation of dosage rates. These types of devices are available -- (indicating) -- here is a picture of one. Here is a picture of the recorder.

It costs $12,750. This plant cost $825 million. Not a bad investment, because it is the only way that the public is going to be able to tell how much their dosage is at a particular site.

The AEC has made it a practice of releasing averages and totals. This just does not work. We have winds blowing in different directions. Then we have different kinds of atmospheric conditions.

The Board should require Metropolitan Edison or the Applicants to provide this service of monitoring this and publish weekly the accumulated dose by all possible pathways to individuals within a 30-mile radius of the plant.

I gave a limited appearance at the Peach Bottom

hearings, and I asked similar questions, very simple and straightforward. And the final result at the Peach Bottom hearings, the Board published a document that said, "all relevant questions were answered by the testimony given."

I questioned that fact. My questions were not answered during the discussions.

So I want to submit my questions to the Commonwealth. There are three very simple questions. I see no reason why the Commonwealth cannot ask these for me.

Is the plant equipment within the site boundaries insured for full value against loss by nuclear accident or radiation or radioactive contamination?

Two: Are truck shipments of spent nuclear fuel to be accompanied by an escort vehicle while traveling in the Commonwealth?

And, three: Will hour-by-hour wind, weather, temperature and radioactive release data by digitized on magnetic tape to provide calculation of doses to individuals who are Commonwealth citizens?

Thank you.

CHAIRMAN HASKINS: Just a minute. Thank you, Mr. Davenport. You referred to this "fine document," and you waved a yellow paper. Could you identify it?

MR. DAVENPORT: This is "Environmental Survey of Transportation of Radioactive Materials to and from Nuclear

Nuclear Plants," by the U.S. Atomic Energy Commission. There are copies in the back. It is one of the poorest examples of statistics I have ever seen in my life, but in reading this document you will find that the result of an accident is not dependent upon what the vehicle is carrying but just the fact that it is on the road.

CHAIRMAN HASKINS: Mr. Burns, off the record.

(Discussion off the record.)

CHAIRMAN HASKINS: Back on the record.

Is there anyone else in the room now who wishes to make a limited appearance?

VOICE: I have a statement if you would like to hear it to be read for Mr. Gehris.

MR. GITNER: There is no objection to having it read.

CHAIRMAN HASKINS: Do you wish to read it or just insert it in the record?

VOICE: Whichever you prefer. He asked me to read it if that would be appropriate.

CHAIRMAN HASKINS: Well, if you wish to read it, please step forward.

First, would you state your name and address?

MS. PARSONS-MILLER: My name is Cecelia Parsons-Miller, 264 Walters Street, LeMoyne.

CHAIRMAN HASKINS: And are you a member of either

of the Intervenor's organizations?

MS. PARSONS-MILLER: I am a member of the local Intervenor organization.

CHAIRMAN HASKINS: Which is what, please?

MS. PARSONS-MILLER: What is the correct title? The Citizens for Safe Environment, yes.

CHAIRMAN HASKINS: Yes, thank you.

MS. PARSONS-MILLER: "Testimony regarding Three Mile Island Nuclear Plant No. 1, offered by Paul D. Gehris, 4100 Elmerton Avenue, Harrisburg, Pennsylvana, November 5, 1973, Docket No. 50-289, at an Atomic Energy Commission hearing at Main Capitol Building, Harrisburg, Pennsylvania.

"The cooling towers on Three Mile Island have risen as a symbol of progress to some, but as twentieth century towers of Babel to others.

My testimony comes to this hearing after trying to study both sides of the issue on atomic powered electric production, and finally coming to a negative position. This is not expert testimony, but having admitted that, the question of the value of "expert" testimony has been questioned by at least one other "expert".

The proximity of the island to the Harrisburg International Airport is cause for concern. Certainly safety factors are built into the project, and the airport traffic is carefully controlled. But human planning is not

perfect.

Radiation emissions could be a problem, and we cannot lightly brush aside the possibility of contamination for nearby -- 50 miles downwind and down-river? -- residents and workers. Atomic powered radiation is not a final answer to America's energy crisis. It is high time to attach patterns of consumption with a view to lowering it, while developing foolproof safe energy sources, including thermal power, wind, ocean and sun.

The transporting and storage of the radioactive waste is not only our problem, but will be a problem for our progeny as well. It is not akin to taking out the ashes from a coal stove.

In an age when the unbalanced among us plant bombs and hijack airplanes, trains and terrorize innocent people in other ways, atomic blackmail could be a wave of the future. Agruments to the contrary fail to convince me that it could not be attempted or even be successful.

And finally, in a time when we are told big lies from high places in our land, is there sufficient reason to believe those who are so concerned to build and use so much so fast?

I believe it is fair to way "wait". People are more important than unlimited power and its profligate use. The risk is high and the result is unsure.

History might say two things of us concerning Three Mile Island and other atomic power plants. They were used by mankind near the end of his time -- or they stand as continuing momuments to our wisdom, not using them in spite of a significant investment of money and time already made.

Really, I do not believe the choice is that armageddonal, but from my citizens' perspective, I'd rather cut down my already meager use of power than risk land and people to a slight but cataclysmic miscalculation.

Would you like to have both copies?

(Handing document to Chairman.)

CHAIRMAN HASKINS: Thank you very much.

Is there anyone else in the room who desires to make a limited appearance, even though they have not yet made a formal request to the Board?

(Show of hands in the audience.)

CHAIRMAN HASKINS: I see three hands. There is a gentleman in the front row; what is your name?

MR. BRAUNSTEIN: Morton Braunstein. I did make a formal request, but I had to be out of the room for a while; and you may have called my name then.

CHAIRMAN HASKINS: Well, the Board has not received your request, but it may be down in Washington. But would you come forward, please?

MR. BRAUNSTEIN: Thank you.

LIMITED APPEARANCE OF MORTON BRAUNSTEIN, ON BEHALF OF THE YORK-ADAMS LUNG ASSOCIATION:

MR. BRAUNSTEIN: I am Morton Braunstein of the York-Adams Lung Association, which is the Christmas Seal Agency in York. And I am reporting for the Nuclear Power Task Force, which our organization had formed last November.

The address of the Lung Association is Box 1125, York, Pennsylania, and neither the Association nor myself are a member of either of the Intervenor's.

The York-Adams Lung Association Board of Directors approved the establishment of the Nuclear Power Task Force in November 1972, to develop constructive recommendations capable of implementation, recognizing the problems of increasing energy demands. The charge to the Task Force was:

Develop a position considering nuclear power within the framework of the energy crisis as it affects clean air conservation and the community health and welfare.

The Task Force wishes to precede summarization of its recommendations with a list of existing and planned atomic power plants in York County and vicinity. Nearby in the upstream and downstream area, a total of approximately 6000 megawatts additional is planned. The total foreseeable nuclear capacity using the Susquehanna water, the upper Chesapeake Bay included, will then be 14,000 or more

megawatts. This will be the greatest concentration of nuclear capability within the United States.

The report and recommendations were reviewed and accepted at a meeting of the Board of Directors on July 17, 1973.

Among the six members of the Task Force, there is one who is a member of the Intervenor's, Dr. Chauncey Kepford.

There are eight recommendations. Of these eight recommendations, three are relevant to one or several of the contentions of the Intervenor's. I will just read the three which are relevant to the contentions.

The first recommendation is entitled "Recommendations on Areas of Potential Threat to the Public and Environment from Existing or Planned Plants."

And this is relevant to Contention No. 7 of the Intervenor's ten contentions.

The Atomic Energy Commission requires such monitoring as that of milk and general radioactivity. The records are then retained by the Atomic Energy Commission, and the Pennsylvania Bureau of Radiological Health, where they are available to anyone who wishes to search the records. The following recommendations are made in order to provide immediate information to the news media regarding radiation monitoring for dissemination to the public.

A. It is recommended that the Commonwealth establish a mile monitoring system within a 15-mile radius of all operating nuclear reactors in Pennsylvania. All data obtained should be made available to local newspapers for publication, and to radio and TV stations.

B. It is recommended that the Commonwealth establish a radioactivity monitoring system in the vicinity of all operating nuclear reactors. Such monitoring should be concentrated in areas where the public might be expected to congregate, and where people live. All data should be made available to the news media.

C. It is recommended that the owner-managers of utilities be urged to install the best available equipment for removal of radioactive iodine from the gaseous wastes from their respective nuclear reactors, and the best available equipment for removing corrosion, activation and fission products, other than tritium, from their liquid wastes.

The Task Force realizes that much of the monitoring has already been implemented; therefore, it wishes to make this statement of support for monitoring systems and a statement of encouragement for expansion of existing monitoring systems.

Recommendation No. 7 of the Nuclear Power Task Force is relevant to Contention No. 5 of the Intervenor's, or

the revised Contentions of Intervenor's.

No. 7 reads, it is a public safety recommendation for waste handling. It is preceded by the statement:

The public must be protected as fully as possible from the effects of nuclear waste released to the environment. The Commonwealth and local disaster groups should have much more detailed plans and better training of responsible groups. Following the recommendations herein should provide better protection if and when needed:

A. That the Commonwealth immediately plan and carry out a Regional Symposium and Training Session on Dealing with Nuclear Accidents, to be presented at local fire departments, rescue squads, civil defense offices, police departments, and before nuclear power plant operators.

B. That the Commonwealth plan and carry out a Work Shop and Symposium on Monitoring the Effects of Nuclear Emissions on People and the Environment, with a goal of establishing a local method monitoring these effects through the cooperation of York and Lancaster County Hospitals and medical staffs.

C. Local legislators should be directed to introduce legislation governing the storage and shipment within Pennsylvania of nuclear wastes. The law should require notification by the shipper to all municipalities through which wastes will be transported, giving the time

and route for all highway shipments.

D. Legislation should be provided to require shipments of nuclear wastes to be made by rail wherever possible instead of by highways.

E. Legislation should be provided to require all nuclear waste containers to be under vacuum and to contain an easily recognized pungent ordor which is unique and easily recognized. Further, liquids in the tanks should be dyed a unique color in sufficient concentration to allow emergencyworkers to quickly trace the path of any leak without special equipment. Similar techniques should be applied to vessels and containers at the reactor sites.

And lastly, Recommendation No. 8, relating to No. 6 of the Revised Contentions of the Intervenor's; and it states, it is a Recommendation on Preferred Methods of Heat Rejection.

Since the nuclear power plant has no chimney, all of its waste heat must be passed to the environment as thermal pollution at river water or cooling tower temperatures. The nuclear plant rejects about 50 to 60 percent more of such heat than the fossil fueled plant for the same efficiency and amount of electricity generated.

While river, lake or ocean water is currently used to receive this vast amount of heat, we should note that air is the most abundant and widely available cooling

medium. At low elevations, dry air cooling can produce a plant efficiency within one percent of water-cooled plants -- an increase of 2.5 percent to 3.0 percent in fuel requirement. Since the fuel cost in a nuclear power plant is 15 percent of production cost, the air-cooled plant imposes only a 0.4 percent increase in fuel cost -- a negligible amount.

Ambient air cooling has the added advantage of not requiring locations near major rivers, lakes or oceans. Diurnal and annual temperature variations can be made to help the overall plant efficiency if adequately considered in equipment design. Higher elevations should be considered to remove plants from populated areas and increase the dilution of their effluents through wider dispersion. The lower ambient temperatures of the higher elevations may well povide greater plant efficiency than now experienced in water-cooled plants. These advantages could be implemented immediately.

And there is an asterisk indicating, "Because this Committee was charged to study nuclear power, the recommendations are made accordingly. The same recommendations should also be made as to the use of electricity from fossil fueled plants."

And the statement of this recommendation states:

All future nuclear plants should be designed

for dry air cooling, and to take full advantage of the diurnal and annual temperature swings. All such plants should be located in higher elevations away from farming and grazing areas to the greatest extent possible. Such plants should be as remote as possible from densely populated areas.

And that concludes the statement of the relevant recommendations of the Public Policy Statement on Nuclear Power of the York-Adams Lung Association, as they relate to Revised Contentions of the Intervenor.

Thank you, Mr. Chairman.

CHAIRMAN HASKINS: Thank you, Mr. Braunstein.

I asked if there were other limited appearance requests, and I saw two hands. Now I see three.

We have exhausted the list of people who made requests in advance, and we are running far behind schedule. On the other hand I don't want to cut you off.

I will ask you one-by-one -- the gentleman in the second row here? Do you have a prepared statement?

VOICE: No, I do not. However, at the last prehearing conference I asked if I could make a limited appearance.

CHAIRMAN HASKINS: Would you state your name, please?

DR. KEPFORD: Dr. Chauncey Kepford.

CHAIRMAN HASKINS: Yes, sir, I remember now. Please be seated and let me check the other people. The two hands over here? Yes, the gentleman in the back?

VOICE: I wrote Mr. Wilchins concerning this hearing, and I thought I wouldn't be here, and I --

CHAIRMAN HASKINS: Would you state your name, please?

MR. FAIRFAX: Richard Fairfax. I live at 25 South Twentieth Street, Harrisburg.

CHAIRMAN HASKINS: Well, Mr. Fairfax, we received a letter from you, and it can be entered into the record; and it was not clear from the letter whether you were making a request to appear, or whether you just wished your letter entered into the record.

MR. FAIRFAX: If that is entered in the record, I will be satisfied.

CHAIRMAN HASKINS: Your letter will be entered into the record now. Thank you.

LIMITED APPEARANCE OF R. J. FAIRFAX, HARRISBURG, PENNSYLVANIA, ON HIS OWN BEHALF:

"I am intensely concerned about the commencing of operations at the Three Mile Island Nuclear Plant, Unit 1, Docket No. 50-289, at Harrisburg, Pennsylvania.

"As Ralph Nader so aptly put it, if the American people knew the gamble they were taking with nuclear reactors

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they would go back to candle power. The American public should know and the AEC should inform them on the exposures of nuclear plants.

"My prime concern is what these plants might do in reference to the genetic structure and life processes of my children and their children. The contamination of our environment and food. These are concerns that haven't had the definite answers they deserve.

"Please enter my letter into the record at the Hearing scheduled in Harrisburg on the 6th of November 1973.

"Sincerely,

R. J. Fairfax."

CHAIRMAN HASKINS: There was one other lady over here who had her hand up?

VOICE: My name is Judith Johnsrud. I have not made a written request to appear; I had understood that I would be asked to testify on behalf of the Intervenors by their attorney, who apparently has decided not to request testimony.

My statement is very brief.

CHAIRMAN HASKINS: Do you have a written statement?

MS. JOHNSRUD: No, I do not have a written statement.

October 25, 1973

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY, et al.	)	Docket No. 50-289
	)	
	)	
(Three Mile Island Nuclear Station, Unit 1)	)	
	)	

APPLICANTS' PREPARED TESTIMONY
RELATED TO
ICING AND FOGGING

My name is Charles L. Hosler. I reside at 1000 Plaza Drive, Apt. 601B, State College, Pa. 16801. I am a meteorologist and have worked for 25 years in the field of weather modification--natural, inadvertant and overt. I have over 60 scientific publications in this field and serve on many Federal, State and professional panels and boards concerned with these problems. I have, since 1968, applied my knowledge in this field to determining what, if any, effects the heat and water vapor originating from cooling towers will have on local weather or climate. I have published papers relating the results of these studies.

Since 1968, in order to determine what might be expected as a result of evaporating a total of between 12,000 and 20,000 gallons of water per minute from the Three

Mile Island cooling towers, a number of theoretical and observational studies have been underway. While large evaporative cooling towers had been used widely in Europe with no ill effects reported, no experience was available in the climate of the Eastern United States to gauge the local consequences. Fortunately, an installation of four hyperbolic towers not very different from those proposed at Three Mile Island were in operation at Keystone in Western Pennsylvania and soon after towers went into operation at Homer City, Conemaugh and Morgantown, West Virginia. Also fortunately, cloud dynamics studies had produced numerical models which were potentially capable of predicting the behavior of the water vapor plumes emanating from these towers. It remained to check observations of actual plume behavior at Keystone with the model predictions.

In addition to intermittent ground and aerial observations since 1968, a systematic program of daily cooling tower plume photography was conducted in 1969. Detailed studies of the influence of weather and climate on plume behavior were carried out using data from Harrisburg State Airport, Olmstead, Washington, D.C. and Pittsburgh to assess any differences or similarities between Keystone and Three Mile Island. Spread over one year, aircraft ascents were made over Three Mile Island to assess the character of the vertical distribution of temperature and humidity and this was related to : utine soundings taken in Washington, D.C.

and Pittsburgh. Special soundings taken in Philadelphia were also utilized in this study.

It very soon became apparent that early concerns over surface fog production were unwarranted. The plumes from the Three Mile Island plant will ascend to heights always exceeding 1,500 feet and usually much greater. No visible plume will reach the ground and no increase in humidity will occur at the ground in the vicinity. By the time any moisture from the plume reaches the ground several miles downwind, it will be so diluted it will not be measurable. These conclusions are based on both observations at Keystone, Homer City and Conemaugh and theory.

The only remaining concern was any affect the visible plume might have on aircraft operations. A flight program was carried out in which a specially instrumented aero-commander twin engine aircraft used at Penn State to study cloud characteristics was used. On these flights, turbulence, vertical motion, liquid water content and cloud drop sizes were measured. Penetrations were made as low as 50 meters above the tower mouth. A summary of the results of these measurements reveals that: In no case was anything but light turbulence experienced and in most cases only a barely discernable uplift was felt. It is difficult to stay in the plume for more than a few seconds due to its small dimensions. On most occasions no droplets were observed to strike the windshield. On a few occasions drops were

observed to strike the windshield but in very small numbers and they immediately evaporated upon departing from the plume. Measurements of drop size revealed that most are too small to strike the air foil or windshield and the liquid water content of the cloud is very low compared to natural cumulus clouds.

Thus, in addition to the small time spent in the plume which prohibits accumulation of ice, even if one could stay in the plume, accumulations would be insignificant. Deposition of vapor from clouds on aircraft surfaces is too slow to be important and could not occur on most surfaces due to dynamic heating of the air near the skin of the aircraft.

In general, the measurements show that the visible plume is indistinguishable from small natural cumulus clouds and the only significant effect of the plume on air navigation is to reduce visibility during those few occasions (about 2% of the time) when extended plumes occur. These occasions all correspond to periods when there are almost certain to be low clouds and precipitation naturally present. The plume from the cooling tower has no special properties that will distinguish it from the natural clouds except its location. On the few occasions a year when the plume levels off immediately below the natural cloud base, there will be the effect of lowering the cloud base by as much as a few hundred feet. Because of the penetration achieved by these plumes,

this phenomenon will always occur at an altitude above 1,500 feet and usually above 2,000 feet. Thus in no case would this tend to increase the number of hours when ceilings would be below minimum.

In summary, it is my conclusion after five years of study of the Three Mile Island plant as proposed and similar installaticns operating over that period in Western Pennsylvania, that there will be no fogging or icing at the surface as a result of operating the four towers at Three Mile Island. The nature of the visible plume will not permit it to reach the ground. Upon leaving the visible plume, the small droplets evaporate very quickly and cannot reach the ground.

About 2% of the time mostly on cold, humid mornings or when rain or snow is falling, the elevated plume will be seen to extend a mile or more from the tower. This visible cloud of water droplets has all of the properties of a natural cloud and presents no hazard to aircraft which might penetrate it. In most cases, at some distance the plume is indistinguishable from and blends with natural clouds.

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CHAIRMAN HASKINS: All right, be seated, please. Thank you.

Dr. Kepford, I remember your request at the prehearing conference. Will you come forward, please?

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DR. KEPFORD: Thank you.

LIMITED APPEARANCE OF DR. CHAUNCEY KEPFORD, YORK, PENNSYLVANIA, ON HIS OWN BEHALF:

DR. KEPFORD: Thank you.

My name is Dr. Chauncey Kepford. I have a Ph.D. in chemistry and a couple of years' experience as a radiation chemist with United Radiation Labs in East Hartford, Connecticut.

I am not a member of any of the intervening organizations as was mentioned by Mr. Braunstein; however, I have worked closely with both of the organizations -- if that will satisfy Mr. Trowbridge. He can draw his own conclusions.

CHAIRMAN HASKINS: Dr. Kepford, would you state where you live?

DR. KEPFORD: Yes.

I live at 108 North Sherman Street, York, Pennsylvania, 17401.

I would like to talk about a number of things, the first is the general problem the public has in dealing with the Atomic Energy Commission.

The Atomic Energy Commission was charged by the Atomic Energy Act of 1954 to regulate and promote the peaceful uses of Atomic Energy, including nuclear power plants, among other things. One of the problems the public has, of course, is the Atomic Energy Commission makes the rules under which it operates, and it makes these rules for its convenience, primarily.

The Atomic Energy Commission appoints the Boards -- such as the one we have here. They are generally composed of an Atomic Energy Commission Staff lawyer, and two technical people, at least one of which has normally been a contract recipient from the Atomic Energy Commission for a period of years.

The public is asked to believe that these Boards are unbiased.

The Atomic Energy Commission, in the case of a hearing like this, if it goes to an appeal, the Atomic Energy Commission also appoints the Appeal Board.

We are also asked to believe that they are unbiased.

The Atomic Energy Commission advises Congress on all manner of subjects, including appropriations, weapons procurement, new laws for the Atomic Energy Commission, and so on. Normally, Congress listens very attentively; the Atomic Energy Commission normally gets what it wants.

The AEC advises the President. Recently we had President Nixon in Richland, Washington saying how desperately we needed the fast breeder program. Of course, a few weeks ago he seems to have changed his mind; we don't know what happened there.

There is one bright spot, though, where the public deals with the AEC: And that is when it comes time to take the Commission to Court. They have a notably bad track record there. Calvert Cliffs is one example. Scientists Institute for Public Information suit over the environmental impacts of the fast breeder reactor is a notable example. There are more.

I would also like to talk a little bit about reactor safety. John Simon mentioned the WASH-740 Report which was published in 1957, which concerned nuclear -- accidents with nuclear reactors. The case he mentioned was for core meltdown. He also mentioned the revised WASH-740 report which was done in late 1964, and early 1965; but as he mentioned, it has not been released to the public.

I have four documents which I will identify for the record, and I would like to read small excerpts, one or two sentence excerpts, from some of these.

These are concerning potential accidents at nuclear power plants of approximately the same size as Three Mile Island or Peach Bottom -- not exactly, but just

about in between.

Two of these documents represent minutes of meetings of the people who were making this report, and various names are mentioned, and I will include these names.

Oh, one more thing: It has often been said by the nuclear industry that the estimates which went into the damage consequence of WASH-740 were extravagant, that sort of thing could never happen because all manner of safety features would work. And of course, we have yet to see any of these safety features work.

All right, in that context, I will quote: "Dr. Beck stated that apparently no basis has been found to suggest that the conclusions of WASH-740 were too conservative, but rather, perhaps that they were not sufficiently conservative." And he goes on, "Dr. Beck--" Oh, incidentally, this is Document No. 92, Minutes of the Steering Committee on Revision of WASH-740, Bethesda, 16 December 1964. And I am reading from page 10.

Dr. Beck stated that in preparing the report Brookhaven would be responsible for the assumption and calculation, and two, a discussion of the factors with regard to the assumption of expected consequences of the accident.

Now that Brookhaven has done the study and gotten the results or conclusions there remained a matter of publishing the BNL Report with discussion, but without

quantitative results. Dr. Cowan asked how this could be done without anybody, that is the Joint Committee on Atomic Energy, knowing that the results are 50 to 100 times worse. Dr. Beck stated that there was awareness of the fact that it was worse and that made the matter of the form of the report very important.

The reason I quoted this is for two reasons: First off, it suggests that the results might be 50 to 100 times worse for modern-day core meltdown accidents than in WASH-740. The second is in the last sentence where they stated that the form of the report was so very important, I suggest that the reason the form of the report was so very important was nothing more than the fact that they did not want the public to know of the report.

On page 12, I would like to quote a sentence, where Dr. Beck says it would not be unfair to say that the results would be something like 40 times higher, but that certainly they could not be lower.

And again this is in the context of the WASH-740 report. That will be all from this document.

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MR. KEPFORD: One further quote on page four. This is in the context, now, of the area of land which may be damaged due to released radioactivity, and Mr. Downs had said something. He said -- a quote. He said that, "Mr. Smith has prepared isotope curves for given releases and meteorological conditions that show the areas involved. For a big accident the area would be the size of the state of Pennsylvania."

That is all from document number 92.

Just a couple of sentences from the document 84. This is, again, the minutes of the Steering Committee, a revision of Wash. 740, Brookhaven National Laboratory, October 21, 1964. The context here is computer programs describing the course of the accident.

Dr. Beck asked if the computer program is ready. Mr. Downs replied that they were running but that the results were fragmented. Dr. Winch noted that unless some mechanism can be found to make their assumptions impossible, "The numbers look pretty bad."

Dr. Beck inquired about the loss assumptions. Mr. Downs indicated that at these levels it seemed pretty ridiculous to define them. Reading the last sentence, "Mr. Downs noted that evacuation had been considered but it was considered impractical to include."

In another place in these documents, I might add, they also stated that unless evacuation takes place within two or

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three hours of the accident, there is no point in evacuating because the people are effectively dead anyway.

CHAIRMAN HASKINS: Dr. Kepford, I don't want to cut you off, but you have run way beyond your five minutes, so would you make an effort to draw your remarks to a close?

MR. KEPFORD: All right.

One sentence from document 82.

"Estimates for the liability for such an accident could be as high as $17 billion." This is an attachment from a letter to Dr. Joseph A. Liebarman of the Atomic Energy Commission dated December 15, 1964.

That will be all from these documents. I would have liked to talk a bit about the Price Anderson Act and what a hoax it is. However, I won't because that will come out anyway.

The last thing I would like to talk about is to make two statements about the problem of thyroid glands. This will be very short.

In a book entitled "Biochemical Individuality", by Roger Williams, published in 1956, he noted two things about the variability of properties of the thyroid gland. The reason we are talking about the thyroid gland is because radioactive iodine collects in thyroid glands.

"The variability of the protein-bound iodine" -- and this can, of course, be radioactive iodine -- "varies in individuals by a factor of three between the high and low

extremes,"and these are adults. "The weight variation of the mature thyroid gland can vary by a factor of six in adults."

Now, with these numbers in mind, I would like to ask the Board -- and considering, of course, the possibility that thyroid containing the largest amount of protein-bound iodine might also be for some reason the smallest thyroid gland -- how are these people going to be protected from severe over-exposure by these lowest practical guidelines?

It could, given these figures, perhaps exceed the guideline value by a factor of five, at least. Also, in the context of large scale radiation exposure to the public, I would like to ask the Board exactly how is a radiation injury defined? At what level does a person become injured as opposed to one who is not injured at a dose below that level; for instance, a dose of 50 rads?

Does a dose of 50 rads to an adult human being or child constitute an injury? And how long must this person wait before he knows whether or not he is injured, or how does he tell whether or not he is injured in a radiation accident?

My last question would be, again pertaining to the Price Anderson Act, if nuclear reactors are as safe as the vendors and purchasers say they are, why won't they risk their company's assets on this assured safety, or do they know something we don't know?

Thank you very much.

CHAIRMAN HASKINS: Thank you, Dr. Kepford.

Now we will take the statement from the lady in the second row whose first name is Judy, and I don't know how to spell her last name.

How do you spell your last name, ma'am?

MS. JOHNSRUD: My name is Judith Johnsrud, that's J-o-h-n-s-r-u-d.

XXX STATEMENT OF MS. JUDITH JOHNSRUD, STATE COLLEGE, PA.

MS. JOHNSRUD: I am appearing today on behalf of the Central Pennsylvania Committee on Nuclear Power, which is an organization based in State College a full one hundred miles from the site of Three Mile Island.

I am a geographer by profession. I have testified before Atomic Safety Licensing Board Committees with respect to population, transportation, and evacuation planning for Newbolt Island and Limerick a year and a half ago.

I have just a few points that I should like to bring up with you gentlemen. Let me add, first, that because of the great distance between Three Mile Island reactor and State College, Pennsylvania, it has been assumed in the past that those who reside that great distance away would not be seriously affected by what occurs at this reactor.

I believe that the information that I have only recently ascertained contained in the 1965 revision, the working papers now available to the public but certainly not

available until this past summer, make it clear that we who live at great distance from the reactor are in fact vitally interested in how it functions and in its potential for accident.

Now, may I ask you gentlemen if you have yourselves read any portions of the very recently published National Science Foundation study generally known by its author, the Ebben Report, actually entitled "Citizen Group Use of Scientific and Technological Information in Nuclear Power Cases," I believe is the wording, published late in this summer, 1973.

Are you acquainted with the document, gentlemen?

CHAIRMAN HASKINS: Persons making limited appearances are not entitled to ask questions of the Board or of anybody else, so we interpret this as a rhetorical question.

MS. JOHNSRUD: All right, fine. May I then add that if you are not acquainted with it, I should like to urge you to familiarize yourselves with its contents, because Mr. Ebben draws the most distressing conclusion by using such terms to describe your function here as simply a "charade".

Now, we of the public, understanding that you are, in fact, public servants paid from public moneys, assume and believe that it is your charge to protect our public interest.

I should like to suggest to you gentlemen that you have an unparalleled opportunity in this licensing case so shortly after the publication of that very distressing document to give

the lie to Mr. Ebben's conclusions that the Atomic Safety and Licensing Boards do not in fact fairly evaluate the potential hazards of a nuclear power reactor in the granting of licenses. You have an unparalleled opportunity to serve the public interest.

Now, with respect to the actual conditions of Three Mile Island reactor and its potential for hazard to the public of the Harrisburg metropolitan area, I would like to say just one or two things very briefly.

In examining the records of construction for this rather old reactor one finds the rather unfortunate incidents related to the difficulties with the pouring of concrete in the containment wall. One finds records of construction defects with respect to the pouring of concrete in the fuel handling building.

I would assume that you gentlemen have examined these construction records and will take into account the possibility that in fact these protective structures do not have the full measure of strength which we might have anticipated of a properly constructed plant.

In addition, we find a number of questions and reservations raised in the ACRS letter on Three Mile Island, clearly a "go-slow" warning, if you will. But perhaps most important, we find in the nuclear literature currently the anticipation of a number of rather marked, major changes in

standards to which reactors would be expected to add here in the future in both terms of population dose, shortly anticipated from the Environmental Protection Agency, and in terms of expectations of new, improved systems such as the dual control system for reactor scrams which will be required subsequently of reactors but is not now required of this particular one.

Here in the Harrisburg metropolitan area we have a peculiarity of population and transportation facilities that gives us serious question with respect to the potential for evacuation under either a class 9 accident or a class 8 accident, the design basis accident which might require the removal of the low population zone residents.

Now, I have noted in previous hearings -- and I am sorry I wasn't able to attend yesterday or earlier this morning today -- I have noted, however, that there is a paucity of visual information presented to you.

In studying the maps available in the preliminary Safety Analysis Report and the Final Safety Analysis Reports, I have felt as a geographer accustomed to working with maps and translating those maps into the actualities of human movement that there was a very poor translation available through the maps available in those reports.

Now, that being the case, I have a specific request to make of this Safety and Licensing Board before their departure from the Harrisburg area, and I put it to you in the

most common, simple of terms.

Gentlemen, before you leave here experience the 5:00 Friday afternoon rush to leave the Harrisburg metropolitan area, and judge for yourselves in the public interest whether in fact the transportation facilities in this limited river valley with peculiarly limited egress from the city of Harrisburg would be adequate in the event of a class 9 accident which, from the information that seems to be available to us, you will shortly be expected to evaluate in the course of such hearings as these.

I believe that concludes my statement. Thank you.

CHAIRMAN HASKINS: Two questions, please.

You mentioned State College. Is that where you live?

MS. JOHNSRUD: Yes.

CHAIRMAN HASKINS: Are you a member of either of the environmental groups which Mr. Sager represents?

MS. JOHNSRUD: I am a member of the Environmental Coalition on Nuclear Power, but I am representing today, however, the Central Pennsylvania Committee on Nuclear Power, which is strictly a State College organization.

CHAIRMAN HASKINS: Thank you very much.

The Board would only observe that while we anticipated, when we came here, experiencing the 5 p.m. rush on Friday, we may not have that privilege.

We plan shortly to take a recess, and I wanted to be sure that all the lead counsel were here. I think they are here now. Therefore, we will recess for ten minutes.

MR. TROWBRIDGE: Mr. Chairman, may counsel approach the bench a moment?

CHAIRMAN HASKINS: Yes.

MR. GITNER: Before that, in response to the limited appearances, the Commission will attempt to answer questions that were raised here, and we will, by letter, answer the questions that were specifically addressed to the Commission as best we can.

CHAIRMAN HASKINS: Thank you very much, Mr. Gitner.

I may say that, of course, the Board will consider very seriously all these statements and likewise the documents which have been referred to.

Will counsel approach the bench.

(Discussion off the record.)

CHAIRMAN HASKINS: The recess, at the request of counsel, will be for 20 minutes.

(Recess.)

CHAIRMAN HASKINS: The hearing will now be in order.

The Board has some procedural matters at this time it wishes to announce, and also one limited appearance it wishes to take, but it looks as if Mr. Trowbridge has something to say.

MR. TROWBRIDGE: Mr. Chairman, we would again request permission to approach the bench. However, if there is a limited appearance, it is just as well we take it. I would ask, however, that before other procedural decisions are made by the Board, that we have the opportunity to approach the bench again.

CHAIRMAN HASKINS: You certainly are entitled to do that The procedural matters are very brief. One relates to the record, and Mr. Trowbridge, you indicated that the statement of one of your witnesses had not been --

MR. TROWBRIDGE: Dr. Hosler did not get physically incorporated in the transcript as ordered by the Board.

CHAIRMAN HASKINS: It is the Board's direction that Dr. Hosler's testimony should be incorporated in the transcript. It did not get into the transcript yesterday. The Board will ask the reporter to put it in at the beginning of the transcript today, or if that is not physically feasible, at an appropriate place with a notation to that effect.

(Testimony of Dr. Charles L. Hosler follows:)

CHAIRMAN HASKINS: We received a copy of the statement by Mr. Shelly which the Board asked be incorporated in the record. Of course, it is necessary to have 30 copies if you are going to incorporate a document in the transcript, because there are that many numbers of copies of the transcript which are distributed.

I am asking the reporter to note that we have received the document and it will be placed in the public document room in the docket in Washington, and available for public inspection.

The same also applies to a paper from Mr.Woodside, who furnished three copies. That is short of the necessary 30, and I have asked the reporter to do the same thing and to make a notation that it has been received, and that a copy will be available in the Public Proceedings Branch in Washington.

Now, we have one further request for a limited appearance statement. I would like to take that up this morning.

Mr. Wood, are you present and available? If you would step forward to this podium. Would you first identify yourself, state your name, please, and your address.

XXX LIMITED STATEMENT OF ERNEST WOOD, GETTYSBURG, PENNSYLVANIA.

MR. WOOD: Ernest Wood, R.D. 1, Gettysburg, Pennsylvania. I am a Director of the Adams County Environmental Improvement Association. I am also the Director of the Health

Information Movement in Gettysburg, however, I speak here as a citizen.

CHAIRMAN HASKINS: Let me ask you this, the question I have asked the earlier participants, and you were not here, I think, in the room: Are you a member of either of the Intervenor groups, namely, the Citizens for a Safe Environment or the Environmental Coalition on Nuclear Power?

MR. WOOD: I get their literature.

CHAIRMAN HASKINS: You are not a member?

MR. WOOD: No.

CHAIRMAN HASKINS: Go ahead with your statement, please.

MR. WOOD: In considering atomic power in any plant, I feel we should take into consideration the stability of our society before we get involved further into such a high-risk type of energy. We have the risk of sabotage at the plant. We have the risk of sabotage at the transport points, and we have the risk these days of highjacking this material which would be extremely useful to other governments as well as to people who wanted to do damage to our own government.

In fact, I think we are playing a game of roulette when we use and add to our source of energy in this area. It isn't like gasoline or natural gas. It is far from it.

I would also like to call your attention to the fact that if I was on the other side planning war games and doing

targeting, I would take serious consideration of the fact that we have these beautiful atomic targets which can do more damage by themselves exploding than the bomb itself.

The plants, as I understand it, are going to be hardened to the extent that they could take a 707 crash. This is good, but I don't think it is hard enough for a small -- just even a small -- atomic bomb or even a very heavy warhead of the old-fashioned type. So we have that factor, I think, to take into consideration.

I spent a number of years with the Defense Department, and I know how the planning goes on and how it is always the energy of the country that is one of the things that becomes vital.

I think another thing we should take careful consideration of in any plant, or increasing the number of plants, as we have, is the long-term incremental increase in radiation that is going to occur. We are not thinking so much about ourselves at the present time, but how about our kids and their children 25, 50, 75 years from now when you are talking about Krypton-85 and these other things adding to the atmosphere, where we are getting several hundred percent increase?

What about 25, 50, 75 years from now? I think this is a very serious matter. I don't think it has been thoroughly studied, and I think we should give it more consideration than we have.

I realize the great importance of electrical power and I feel that we should make plans for additional energy from this source because our other sources of energy are just disappearing. So I think the utilities, for instance, should think about maintaining on a lease or rental basis with individual consumers wind power systems and solar systems.

We built a house that has a good deal of solar energy used to heat it. Now, it is merely a matter of design. It is nothing unusual, just a matter of design that helped the house, so as of today -- this is the 6th of November -- we have only used our electric power -- we have an electric heat pump. We have only used that three times so far, and only for short periods of time, at that. The rest of the time we have had enough heat from the solar heat.

Last of all, I would like to say in my experience with government that government is always closer to industry than they are to the consumer. Now, this is unfortunate, but it seems to be the way it works out, and I am glad to have had this opportunity today to speak as a consumer, one who is interested and one who feels that you are giving the consumer a better chance to talk with government in a way that we should have the opportunity to do. I think this is important.

I would reiterate, the stability of the society worries me. I don't think we are above having a civil war. I don't think we are above having riots. And I think that the war -- we are not above having war. We can see the predicaments

we get into very quickly and suddenly, and this has happened just in the past month. So a little bomb on a big bomb -- you know, that plant there is just like a big bomb. I understand from AEC reports that if it went off in the right way, it could cover three Pennsylvanias.

Then the last thing is this incremental increase that we are getting in radiation year after year after year, and what about our grandchildren, our great-grandchildren? What about them? We have to think about them as we plan this. Thank you very much.

CHAIRMAN HASKINS: Thank you, Mr. Wood, for a very interesting statement, and the Board appreciates your coming all the way from Gettysburg to make it.

Now, I understand counsel wish to approach the bench again.

(Discussion off the record.)

CHAIRMAN HASKINS: The Board is shortly going to take a short recess because I am going to call a meeting of counsel, and the Board will meet with the lead counsel from each of the parties, Mr. Trowbridge, Mr. Gitner, Mr. Sager and Mr. Adler.

Therefore, we will recess for 15 minutes.

(Recess.)

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CHAIRMAN HASKINS: The hearing will now resume.

We have taken up a great deal of the morning with limited appearances, which is perfectly appropriate and proper; and, because of that, I think we won't try to go back to cross-examination before lunch, so I think shortly we'll adjourn.

I did want to make one announcement. Counsel for the Intervenors had requested that Commissioner Denenberg be taken out of turn and that we hear his testimony on November 7th, namely, tomorrow; and, apparently, he would be available tomorrow afternoon. Therefore, we will continue with our regular hearing in the morning, but we will interrupt it at whatever point we are and hear Commissioner Denenberg at two p.m. tomorrow afternoon.

MR. OLSON: Mr. Chairman, the Staff had, as previously issued, a request for taking Commissioner Denenberg's deposition; and the Staff would not be prepared to cross examine Commissioner Denenberg tomorrow, so we would prefer that that also be postponed.

CHAIRMAN HASKINS: I hear you, Mr. Olson; and your request is denied. We will hear Commissioner Denenberg at two p.m. tomorrow afternoon.

The hearing will now adjourn until 2:30.

MR. TROWBRIDGE: Mr. Chairman, excuse me, I'm unclear.

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I perhaps misunderstood the conference that we just had. As I understand, Commissioner Danenberg will appear tomorrow. The Board will hear argument and rule on the admissibility of his testimony at that time; am I correct on this?

CHAIRMAN HASKINS: Well, we certainly are not ruling on the admissibility of his testimony. That would be one of the issues.

When he appears, we will consider his testimony; whether it's admissible; whether it's within the scope of the contentions and the like; but he will appear at two p.m. tomorrow afternoon.

MR. TROWBRIDGE: Right. And, if allowed, I assume we will also, as Mr. Olson has said, we will be able to on the record discuss with the Board the question of the timing of any further responses or further testimony in this area.

CHAIRMAN HASKINS: Well, the Board certainly would not exclude discussion of any party by any other procedural steps with regard to that witness or any other witness.

Very well. We will now adjourn until 2:30 this afternoon.

(Whereupon, at 12:30 p.m., the hearing was recessed for lunch, to reconvene at 2:30 p.m., this same day.)

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AFTERNOON SESSION

(2:33 p.m.)

CHAIRMAN HAWKINS: The hearing will now resume.

We left off yesterday with our cross-examination of Dr. Carson, which had not been completed; and, normally, we would resume that this afternoon.

However, counsel for the parties have come to the Board and have asked for a recess for the balance of the day in order to confer and -- that is, for counsel to confer among themselves.

And the purposes of their conferring is in an effort to see if they can resolve one or more of the outstanding contentions. As everybody knows, there are ten contentions pending before the Board, all of which are now set for hearing with witnesses to testify on cross-examination.

In the event the lawyers for the parties are able to resolve one or more of these issues without hearing, that would obviously shorten the hearing and expedite the proceeding.

So at the request of counsel for all parties, the Board will now recess for the afternoon and we will reconvene tomorrow morning at 9:30 a.m.

(Whereupon, at 2:35 p.m., the hearing was adjourned, to reconvene at 9:30 a.m., Wednesday, November 7, 1973.)