NUCLEAR REGULATORY COMMISSION

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In the Matter of:

PUBLIC MEETING REGARDING NRC DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT RELATING TO DECONTAMINATION OF THREE MILE ISLAND UNIT 2

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING REGARDING NRC DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT RELATING TO DECONTAMINATION OF THREE MILE ISLAND UNIT 2

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Hensall Hall Auditorium,
Franklin & Marshall College,
Lancaster, Pennsylvania,

Monday, 6 October 1980.

The public meeting was convened, pursuant to notice, at 7:35 p.m., the Honorable ARTHUR MORRIS, Mayor of the City of Lancaster, presiding.

ON BEHALF OF THE NRC STAFF:

JOHN COLLINS, Deputy Program Director, TMI Program Office

FRANK CONGEL, Section Leader, Radiological Assessment Branch

OLIVER LYNCH, Section Leader, TMI Program Office

PAUL LEECH, Program Manager, TMI Program Office

DON CLEARY, Section Leader, Regional Impact Analysis Branch

THOMAS ELSASSER, State Liaison Officer, TMI Program Office

ON BEHALF OF THE EPA:

MATT BILLS, Associate Assistant Deputy Director for Environmental Monitoring

ON BEHALF OF THE EPA (continued):

BILL KIRK, Director, TMI Field Station

ON BEHALF OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES:

THOMAS GERUSKY, Director, Bureau of Radiation Protection

* * *

I N D E X

P R O C E E D I N G S

(7:35 p.m.)

MAYOR MORRIS: Good evening, ladies and gentlemen. Can you all hear me?

(A chorus of nayes.)

MAYOR MORRIS: That's a good beginning. How does that sound?

If there are some of you who would like to get a better view of the screen, because the printing is probably going to be maybe smaller than that at times, there is plenty of room up here. So if there is anybody who would like to move to the front now, please do so.

I would like to welcome you to this public meeting on the Draft Programmatic Environmental Impact Statement. This meeting was requested by the City at the initial meeting on the EIS held in Harrisburg on September the 3rd, and I would like to thank the NRC, the EPA, and the DER for agreeing to hold this meeting in Lancaster.

Before introducing the people up here with me, please let me cover a few other points. The entire meeting is being transcribed. Copies of the transcript will be available free of charge to the local public. That will be available in about a week at the NRC's Middletown office.

The meeting will begin -- after I'm finished with these initial remarks -- with a brief 30-minute summary of the

Draft EIS, and that summary will be given by the NRC. At the conclusion of the NRC briefing, the floor will be open to anybody wishing to comment or raise questions or concerns about this document.

If you want the floor, come to the two microphones. There is one on this aisle (indicating), and one on that aisle over there (indicating), and let me acknowledge you as the next person to be heard from before you begin speaking.

At the time you are acknowledged, please give your name and address for the record, and then proceed with your comments. The meeting will conclude at 10:30 p.m. I know there are many people with questions to ask and comments to make. In order for people in attendance to get an opportunity to raise meaningful concerns, I am asking you to try to be concise and not to raise the same issue which somebody else has spoken to already.

We all want to make the most out of these next three hours. Please allow people to make their comments, and allow the appropriate person up here on the stage to answer questions raised.

At this time, I would like to introduce the head table, but before doing that I would like to introduce myself. My name is Arthur Morris, Mayor of the City of Lancaster. I will serve as moderator this evening.

Sitting right to my right is John Collins, Deputy

Director of the TMI Program Office of the NRC. The next person over to my right is Tom Gerusky, Director of the Bureau of Radiation Protection, Pennsylvania Department of Environmental Resources. Next to Tom is Matt Bills. He is the Associate Director for Environmental Monitoring and Research Programs of the EPA, the Federal Environmental Protection Agency. And I believe Dr. Bill Kirk, Director of On-Site EPA Office, is here. Bill, would you stand up and be recognized.

(Mr. Kirk stands.)

MAYOR MORRIS: At this time, I would like to turn the next 30 minutes or so over to Mr. Collins. He initially said he would introduce his staff, and from there we will proceed with the briefing that NRC will give on the Draft EIS.

MR. COLLINS: Thank you very much, Mr. Mayor. I certainly appreciate the opportunity to be here in Lancaster and discuss with you the contents of the Programmatic Environmental Impact Statement, and to of course listen to your comments and your questions, and certainly we will try to answer them this evening. If not, we will certainly supply those answers to you in the future.

Before I get into the formal presentation, I would like to introduce to you members of the staff who are with me here this evening, and who will be available to answer your questions or to discuss in detail various aspects of the Impact Statement.

Seated here in the front row is Oliver Lynch and Paul Leech. Both of them are Project Managers for the Impact Statement, and both are with the TMI Program Office. Next to them is Dr. Frank Congel, who is the Section Leader in the Radiological Assessment Branch in the NRC. Next to him is Don Cleary. He is with the Regional Impact Analysis Group. Tom Elsasser is our State Liaison Officer from Region I assigned to our Program Office. And, Suzanne Issaacs, my secretary.

Before jumping into the Impact Statement, in the last several weeks in making these presentations to various groups I have taken a few minutes to discuss the recent actions by the Public Utility Commission and what impact they have had on Metropolitan Edison, because it may of course have an impact on the cleanup operations at TMI-2.

On July 29 of this year, Metropolitan Edison applied to the PUC for emergency rate relief in the amount of $35 million. At the same time, they also applied for a general rate increase amounting to $76 million. The latter action will take place at a hearing sometime in April of '81.

On August the 28th of this year, the PUC denied Metropolitan Edison emergency rate relief. On September 12th, as a result of that denial, Metropolitan Edison sent a letter both to the PUC and to the NRC indicating cutbacks that would have to occur as a result of those actions. They would have to cut back from a $100 million spending level to a $50 million

spending level.

On September 18th of this year, the PUC issued a prehearing statement and order in which they identified in the order indicating to Met Ed that they were not allowed to use any of the revenues received from the rate payers to pay for the cost of the cleanup of TMI-2; that the only funds that they were allowed to use were those derived from the insurance.

The language itself was confusing. It was not very definitie, and Met Ed petitioned the PUC for clarification. They were denied that clarification. As a result of that action, Metropolitan Edison petitioned the Middle District Federal Court in Harrisburg for a temporary and permanent injunction. On last Friday they were denied that temporary and permanent injunction.

However, Judge Herman did agree to have the parties submit briefs effective today, and then would propose to have a hearing on that matter on Wednesday of this week.

On Friday of last week, too, the NRC issued a policy statement. I will just briefly summarize that policy statement. It said: "We take no position on whether the actions of the PUC create an inreconcilable conflict with NRC requirements which have been imposed on Met Ed or which may be imposed in the future. We wish to state clearly, however, that in the event of any such conflict, NRC health, safety, and environmental requirements must supercede state agency requirements that

result in a lesser degree of protection to the public. In short, the Commission will not excuse Met Ed from compliance with any order, regulation, or other requirement imposed by the Commission for the purposes of protecting the public health, safety, or the environment."

Now over the weekend there was a considerable amount of dialogue between Metropolitan Edison, their lawyers, and the PUC lawyers. Metropolitan Edison filed a letter with the Federal District Court today asking for a stay on the hearing. They were granted that stay, and the Judge has not now set any definite time for a hearing because both parties are in a series of negotiations. As a result of those negotiations it is presumed that some clarification can be arrived at that would be satisfactory to both parties. And that pretty much tells you where we are today.

The NRC of course has been meeting, itself. We are following the events, and we will of course be most interested in the settlement to assure ourselves that those regulations and requirements necessary to protect the health and safety of the public and workers are incorporated in that agreement.

(Slide.)

I hope everybody can see the screen. I have a wireless microphone on. I hope that everybody can hear it, because I do want to walk over to the screen.

Can everybody hear me?

VOICE: We can hear you, but we can't see you.

MR. COLLINS: Well, I'm sure that after they take some photographs, they will -- Can everybody hear me now through the speaker?

(Chorus of yeas.)

MR. COLLINS: As you know, in November of last year the NRC Commissioners prepared a statement in which they ordered the staff to prepare a Programmatic Impact Statement concerning all of the cleanup activities at TMI-2, in November of '79.

In August of this year, the NRC staff published the Programmatic Impact Statement in draft. It was formally noticed in the Federal Register on October 22nd, to begin a 45-day comment period. As a result of the many comments and letters and requests for extensions for that comment period, the NRC granted an additional 45-day comment period, with the comment period now ending on November the 20th. So that during that period of time, we certainly solicit your comments on the Impact Statement.

As we indicated, this evening the meeting is being reported and transcribed. Copies of the transcript will be available to local area residents free of charge, and certainly you may pick them up in my Middletown Office.

The purpose of course of the Impact Statement was to assist the NRC in carrying out its responsibilities under

the Atomic Energy Act, to protect the health and safety of the public as the decontamination operation progresses at TMI-2. It was also the purpose to engage the public in the Commission's decision-making process, in keeping with the National Environmental Policy Act. And it was also to focus in on environmental issues and alternatives before commitment to specific cleanup choices were made.

With regard to the second purpose, as you know during the review, public review on both the environmental assessment on EPICORE II and the environmental assessment for purging of the reactor building, the Council on Environmental Quality felt that the NRC should not segment the operations, but should look at the total cleanup operations in total and develop an Impact Statement, and of course set the tone for developing such a document.

Could we have the next slide, please?

(Slide.)

The Programmatic Statement does provide an overall evaluation of the environmental impacts of decontamination and disposition of radioactive wastes resulting from the March 28th accident. It provides a description of proposed cleanup activity, and a schedule for their completion.

However, as I indicated to you, because of recent cutbacks in TMI-2 -- and they have not been well defined; there have been some cutbacks to date, or are anticipated -- until the

dust settles out and the programs have been established on a more different time frame, of course that will have a dominoing effect and undoubtedly the schedules will be readjusted to reflect those downward trends in programs, and that will have to be reflected in the Final Environmental Statement.

It does contain a description of proposed cleanup activities, or alternative methods for accomplising the principal activities, and the environmental impact assessment of those methods which are considered feasible. Certainly we would expect, in receiving comments from the public, that they certainly may have other methods which we may consider feasible, and the staff looked at those which we considered to be most technically feasible, and we would be happy to hear from you if you have other additional comments in those regards.

(Slide.)

I think it is important to point out what the statement does not cover. First of all, the statement does not address any of the environmental impacts associated with the accident or the accident itself. I think the accident has been described in many documents -- the Rogovin Report, the Kemeny Commission, the NRC Office of Inspection Report -- and those impacts have been addressed.

It does not in any way discuss the ultimate disposition of TMI-1 or TMI-2 -- whether you want to decommission, or whether you restore the plant for operation, that's a

subject that will be discussed at a later date.

It is important to note, though, that whether you decommission the plant, or whether you restore it for operations, the plant must be cleaned to nearly the same level. So it is not a question of decommissioning or restoring at this time; the question is: It must be cleaned up.

It does not give recommended choices for specific cleanup methods. What this document is, and what it is not: It is not a decision-making document in itself. Meaning, that it does not set forth specific recommendations. It discusses various alternatives.

It will, however, be used in the Commission's decision-making policies down the road. What it will do, at some point after the Environmental Impact Statement has been published in the final form, the Licensee Metropolitan Edison Company would propose an alternative, or a method for cleaning up the various parts of the plant.

At that time, the NRC staff would take a look at that methodology that they propose. If it falls within the scope of the Environmental Impact Statement, there is no necessity for the staff then to issue a supplement to reconsider the environmental impacts. If the alternative method that they propose is outside the scope of the document, then staff would be required to issue supplements to the document.

(Slide.)

A little discussion about the slide. First of all, it's in error in that the comment period we had proposed was November 20, '81, not '80 -- Pardon me. These two (indicating) should be "1981" and not "1980."

We had originally intended that on a 45-day comment period, the comment period would end in October. The staff would then hope to finalize the Impact Statement before Christmas. With the extension, it is now proposed to submit to the Commissioners by the end of February for their review, and the final EIS would be available about the end of March pending Commission action.

(Slide.)

I would like to go through now the major conclusions that are contained in the document. Of course we recognize, as many of you have commented to us already, the voluminous amount of information contained in there and the complexity of the document. However, I would suggest to you that if you read the summary, it was written in layman's language and I think it is understandable to you.

We will go through the conclusions, and at the conclusion of that we will be happy to try to answer any of your questions with regards to those conclusions.

Looking at the total cleanup operations, the staff has estimated that the maximum dose to an individual off-site from the cleanup should not exceed 1.6 millirems. The risk of

cancer from this dose is about 2.2 in 10 million; compared to 1 in 5 from normal occurrences in the United States.

Additionally, the risk of genetic effects from the cleanup would be about 4.2 in 10 million, compared to 1 in 7 from normal occurrence of hereditary disease.

Looking at the cumulative dose to the population within a 50-mile radius of Three Mile Island, the staff has calculated the person-rem dose to be about 6 person-rem. This is compared to approximately 255,000 person-rem to the same population annually from natural causes.

The second conclusion reached was consideration of the large number of waste shipments that will have to be made from TMI over the next several years during the cleanup operations. Staff calculated that if an individual who spends three minutes at an average distance of three feet from the truck loaded with radioactive waste might receive a dose of up to 1.3 millirems. The probability that this dose would cause a cancer over the lifetime of the individual is about 1.7 in 10 million. The probability of genetic effect was approximately 3.1 in 10 million. Again, estimating the number of people along the 2000-mile route from here to Richland, Washington, which is the burial ground -- shallow-land burial ground now receiving the low-level wastes -- we calculated the cumulative population dose to be in the range of 26 to 66 person-rem. That also included the fuel from TMI-2. That was a very

conservative assumption because at the present time, first of all, no decision has been made as to the ultimate disposition of the fuel itself. But if one considers the 2300-mile route for transportation, that would be the longest distance it would have to travel, and we used that same conservative number of people that may be exposed.

The uncertainty in all these numbers is that, at the present time, as we will discuss, there is uncertainty in the number of shipments that have to be made, because at the time of the development of the Draft Impact Statement, not enough detail was known as to the level of contamination in various areas in the plant. So that it was difficult to finalize, or put into final thinking and refine the calculations. That will of course be done in the Final Environmental Impact Statement.

Of course outside of the general public, we are concerned about the worker that will be exposed during the cleanup operations over the next several years. We calculated the dose estimated to be between 2700 and 12,000 person-rem that could occur during the cleanup. The corresponding health effects would be .3 to 1.6 additional deaths due to cancer; and from .7 to 3 additional genetic effects.

It is interesting of course to note that the occupational dose to the individual worker at the site is restricted by our regulations to no more than 3 rem in a quarter. Metropolitan Edison has applied an administrative

limit more conservative than that, and required that no worker receive more than 1 rem in a quarter.

Again, the uncertainty in these numbers or the wide range is a result of uncertainty as to the levels of contamination that exists particularly in the reactor building. These estimates were made prior to the first two entries into the reactor building. As you know, the levels in the containment building itself are less than what we had originally projected. So in the final statement, these numbers will undoubtedly be revised downward.

The contaminated liquid from the auxiliary building and the fuel-handling building, the reactor building sump, the reactor coolant system, and the decontamination activities can be processed by several of the alternative water treatment systems considered by the staff -- and we will discuss a little later on those alternative methods that we did consider.

(Slide.)

After suitable dilution, the processed water could be released to the Susquehanna River without adverse environmental impact. Although I must point out very carefully that: No decision has been made as to what will be done with the water once it has been processed.

As you know, last year we were engaged in a legal suit which ultimately resulted in signing an agreement between Metropolitan Edison, the City of Lancaster, and the NRC, in which

we agreed that no water would be discharged to the Susquehanna River pending the completion of the Environmental Impact Statement.

Later on, we will discuss the various alternative methods that the staff considers could be used for disposing of the TMI-accident-generated water.

(Slide.)

We also looked at what could be the worst accident scenario at the plant at the present time. We conceived that the worst accident would be that if the water within the reactor building -- which amounts to approximately 650,000 gallons -- if that began to leak into the ground water and subsequently to the Susquehanna River. If that did occur, and if an individual did drink two liters of water a day for a year, that would result in a dose of about 31 millirems. If he ate 21 kilograms of fish, or approximately 40 pounds of fish in a year, he could receive a dose of about 27 millirems.

We calculated that the travel time from the reactor building into the groundwater to the Susquehanna would take approximately 1.6 years. And if one compares the accident to the amount annual received from natural background radiation, it is still a small fraction of that.

(Slide.)

Of course we did consider in the Environmental Impact Statement the stress that will be received, or viewed

by the public as the cleanup operations progress. The staff, together with its consultants, conclude that the high level of stress, of psychological stress, should be relieved since the venting of the krypton-85 earlier this year.

They feel, however, that low levels of stress will probably continue throughout the cleanup operations, but no long-term effects on a great majority of the community are expected.

The long-term nature of the cleanup program presents the potential for chronic stress for some people. Completing the cleanup as expeditiously as safety considerations allow is therefore most desirable.

(Slide.)

The staff of course looked at the social impacts and the political impacts, or potential economic impact. The social impacts -- such as reduced property values, compensation between the work force and the tourists for temporary housing, and traffic congestion may occur.

We looked at potential impacts including the effects of increased electricity rates, reduced tourism, possible resistance to consumption of agricultural and fishery products that the public may think are radioactively contaminated.

Although the number of trucks of shipment necessary to carry the solid radioactive wastes from TMI-2 to Richland, Washington, is large -- it could be in the range of anywhere

from 660 to 1700 -- and again the uncertainty, or the reason for the wide spread, is the uncertainty at this time as to the individual methodologies that will be used to clean up the various parts of the plant. Hopefully with the more information that has been gained from the two containment entries, and another additional entry scheduled, that information will help us to refine our estimates of waste shipments that will need to be made.

However, it is important that all of the shipments leaving the site must meet the NRC and the Department of Transportation regulations.

Radioactive fuel and other high-activity wastes from TMI-2 must be packaged, and it may have to be stored at the site for some time until a suitable disposal site has been selected. No significant environmental effects are expected.

What we mean by this is: There are higher activity wastes as a result of processing this water from both the auxiliary building and the water that will be processed from the reactor building. The staff does not believe that this high-activity solid waste can be buried in a shallow-land burial ground.

We are investigating, with the Department of Energy, other disposal sites for that waste. The same thing is true of the fuel itself. Once the fuel is removed, it will of course be stored in the TMI-2 spent fuel pool until a decision has

been made as to the ultimate resting place for that fuel.

(Slide.)

The staff believes that the methodologies exist to clean up TMI-2. It may be necessary to modify the methodology, but there is a valuable amount of experience that has been gained over the years from the former Atomic Energy Commission installations, now the Department of Energy; and also from the experience that has been gained in the European community.

The main factors determining the difficulty of the cleanup and the required number of trained technicians are the degree of difficulty in cleaning up the reactor building and the amount of damage to the core.

Of course we believe that the most difficult job facing the Licensee and the NRC is going to be the removal of the core from the reactor vessel, because of the uncertainty as to the configuration and the uncertainty as to how much damage was realized by the core.

(Slide.)

The original estimates projected by Metropolitan Edison shortly after the accident, they had Bechtel Corporation put together a document on cleaning up the plant. They originally estimated it could be done in about three to four years. That estimate was revised this past summer. The NRC staff, after its review of the appropriate documents, believes that it is going to take five to seven years from the beginning

in April of 1975 when the reactor was put into a safe shutdown position. And that, of course as a result of the recent actions, by cutbacks in programs, that schedule may have to be revised and extended outward.

(Slide.)

The cleanup operation will alleviate several potential hazardous conditions at TMI-2. For example, there is a possibility of additional releases of radionuclides to the environment in the event of human or mechanical failures. The staff concluded that on balance, though, the benefits of a full decontamination, core removal, and disposal of the radioactive wastes resulting from the March 28th accident at TMI-2 greatly outweigh the environmental costs of cleanup activity.

(Slide.)

The next slide shows you some of the alternative methods that were considered in cleaning up the plant. The first two of course I think are the two most viable alternatives: Full cleanup, salvage, and decontaminate the useable equipment. We considered full cleanup and remove the equipment with minimal or no decontamination and transport it to a disposal site.

We did of course look at the last three alternatives: Partial cleanup with defueling; partial cleanup, fix core in place; and then of course, number five, "no action,"

which we didn't consider to be a very viable alternative. You cannot lock the door and throw the key away. The plant must be cleaned up and the fuel must be removed. But in looking at all the alternatives of the impacts, that was one that deserved at least being addressed in the Impact Statement.

(Slide.)

The next slide addresses the type of water treatment systems that are available for cleaning up the high-activity water that remains in the containment sump and in the primary system.

The Zeolite resin system, which is the organic/inorganic resin system proposed by the Licensee, known as the "SDS," or the "submerged demineralizer system."

The staff also consider and addressed evaporation followed by a resin system; or, solidification in Portland Cement; or solidification in asphalt; or, we looked at filtration followed by storage in tanks.

(Slide.)

The next slide discusses the various alternatives for dosposing of the water. We looked at the -- The alternatives looked at were: Retaining the liquid in tanks on the site for a long period of time. Talking "long period of time," normally when we license a reactor we consider the normal operating life of the plant to be about approximately 40 years. So we're talking in that range or longer to hold the water.

We considered of course local release to the river, which we have indicated would not cause any environmental impact. We have looked at release to an evaporation pond on site. You construct a pond and, by solar evaporation, allow it to evaporate to the atmosphere.

We also looked at forced evaporation -- again, which would be released to the atmosphere.

Another alternative would be to release it to a deep-well injection. "Deep well injection" are deep wells drilled a thousand-plus feet into the ground.

We looked also at solidifying all the water in chemical agents and shipping it to a licensed burial ground. Of course that would increase the number of rad waste shipments that would have to be made.

And: We'd ship as a liquid for remote processing or dispoal at some other site.

And then of course, the last one, we looked at just solidifying it in large concrete slabs and holding it on TMI-2. Of course we're not very anxious to make TMI-2 a long-term burial ground.

(Slide.)

I show this slide because, on our first meeting in Harrisburg on December the 3rd, it received a considerable amount of attention. The slide originally showed -- this is the routing taken for solid-waste shipments. We leave TMI-2 on

441, and we pick up Highway 230, and then take it up to 283, up to 83. It did show us going over to Highway 11 and then 15 and going up, and that was erroneous. The routing is to go up 283 to 83 over to Interstate 81, and we pick up Interstate 80 and go out to the Ohio border.

The incorrect slide in the Impact Statement was put in there because at one time Metropolitan Edison did propose that routing for an overweight shipment, but it was never used. It got into the document, and it should not have.

I think that's all the slides, Mayor.

Oh, just one thing.

(Slide.)

The one last slide we do have shows the water users downstream from TMI-2, all the way down into the Chesapeake, and we will be happy to answer any questions you have on this regard.

MAYOR MORRIS: Thank you, John.

As the moderator this evening, I expect an orderly meeting. If for some reason a person is ruled out of order, I fully expect the person to take their seat again. Deliberate disruption will not be tolerated.

I just counted the people and looks like about 250 people are here to express their concerns and get answers to questions. I would like to see us make the most of this opportunity to do so.

With that comment, at this time I would be happy to have people come forward and make their concerns known, or ask whatever questions they would like to ask.

Ma'am, please, again I would remind you, if you would, to state your name and address, and take it away. It's all yours.

STATEMENT OF MRS. HYATT

MRS. HYATT: My name is Mrs. Hyatt. I have two addresses as of right now. My home is near Three Mile Island, but because of psychological trauma I have had to leave there a year ago and cannot make myself go back.

Now what I want to know is, I have been through a lot of traumatic experience and know some facts on TMI that haven't been told by the NRC or Met Ed. What I want to know is, I'd like to go back to my home; but if the course of cleanup is going to be as bad as what I think it is, and have found out it to be a fact, I would like the panel to come right out tonight and be honest about it.

I have a home and a husband back there at Three Mile Island that I cannot force myself to go back there. And if you could just be honest about the cleanup and say how much radiation I am going to be exposed to if I go back, and the constant release of the Krypton. I know for a fact it's a heavy noble gas, and depending upon the wind, which way I'm going to get it directly.

So what I would like to know is, just exactly how harmful will it be if I go back -- not counting the psychological stress that I'm under.

MR. COLLINS: Well, I think if we could show the first slide again, we pointed out that all the operations associated with cleanup that will occur until the plant is defueled and the primary system cleaned up, the maximum dose to the individual at the most critical site boundary would be no greater, or should not exceed 1.6 millirems.

Now you said, "the continuing release of Krypton-85," as you know, we did release over about an 11-day period approximately 44,000 curies of Krypton-85. There have been small releases since that time, and there will be continuing small releases until all of the Krypton-85 comes out of the reactor building water. There are small amounts still remaining in there, but as a result of the last purge, for example, it was less than 10 curies. The purging of that right now is dependent on when the entries will be made into the containment building. But there are no more single sources of large amounts of radiation to be released from the plant.

As we can see, all of the cleanup operations would result, if you were at the most critical boundary, the maximum exposure to individuals would be 1.6 millirem -- and that will drop off with distance. So that over the total cleanup time, if you happen to be living right there at the critical boundary,

that is what you could hope to receive. And what you may receive if you are any further away than that is going to be considerably less than that. I don't know how much more honest I can be with you. That is what the staff is estimating the dose to be.

MRS. HYATT: Well, the further I stay away from there, the better off I will be? Is that right?

MR. COLLINS: Not necessarily, because this dose is already insignificant to begin with, if you compare that with what you receive from natural background radiation annually, which is 116 millirem. So you're talking about a small fraction of the natural background.

MRS. HYATT: But we all know that any amount of radiation is too much. We all know that. So the closer I am to the plant, I understand, the more harmful the effect will be on me. So I think I would be better off further away.

MR. COLLINS: Frank, would you like to add some comments to that?

DR. CONGEL: The only thing I can add is, that when you made the comment that the farther away from the plant you were, the better off you would be: You would have to qualify it. It depends on where you went.

Natural background radiation does vary considerably in various regions across our country, as well as throughout the world. And indeed, when you are talking about numbers as

small as we are here, it would be very easy to increase your dose of 1.6 millirem very simply by your living habits.

The point is -- and I don't know how to really get this across, and I think I can understand the feeling a lot of people have -- is the fact that that number is small enough so that it gets lost in any kind of the everyday activities that we have.

You also made the statement about any amount of radiation is too much. I can only quote the statement, or conclusion that was drawn in the latest National Academy of Science study that was published in the so-called BEIR Report, the Biological Effects of Ionizing Radiation, that came out this summer. It said there was no evidence to indicate that doses on the order of 100 millirem a year would have any demonstrable effects on the population. It said that the evidence to date has not indicated that one can or cannot deduce any effects. The reason is because of the variation of living habits and the other insults that our bodies are experiencing for a host of other reasons.

So the only thing I can say is to try and put the "1 or 2 millirem" thing in perspective and discuss it from there.

MR. COLLINS: Thank you.

MAYOR MORRIS: Thank you.

Sir, I think you are next.

STATEMENT OF VINCENT R. LUDER

MR. LUDER: My name is Vincent R. Luder, 2817 Spring Valley Road.

I would like to ask how many questions we are allowed to have each.

MAYOR MORRIS: I don't know if there's a limit as to -- I didn't want to set a time limit, but as to the number of questions I think it depends on how quickly you ask them. I am trying to be reasonable and give every person about 10 minutes. I would like you to hold it to 10 minutes. If you need longer and it's different questions, we will permit you to do that; but please don't repeat yourself.

MR. LUDER: I have one comment before I ask my questions. Pertaining to the woman that was just up, the answers that she received implied that the radiation from the artificial elements that are created in nuclear plants are identical in effect on human beings as are natural background radiation levels, assuming that we consume and ingest all the natural background levels in the same way -- which I'm not really certain of, from my background, being able to discern that that is actually true, but I'll continue with my question.

MR. GERUSKY: Can I answer that? Can I answer that question?

MR. LUDER: If you can.

MR. GERUSKY: Can you hear me?

VOICE: We can't hear you, and we can't see you. We're blinded out here.

MR. GERUSKY: Can you hear me now?

The effects of radiation are based upon a comparison of the doses from a variety of sources and a variety of radiations, and they are all related in terms of millirem exposure. "Rem" is radiation exposure from any source. It is the effects of radiation on the human body, and it doesn't make any difference whether it is natural background radiation -- 1 millirem of natural background exposure or exposure from flying in an airplane, or exposure from fallout from Chinese tests, or exposure from nuclear power plants. If it is 1 millirem of whole-body radiation, it's 1 millirem of whole-body radiation with the same effect.

MR. LUDER: So in other words, 1 millirem of radiation from the sun would have the same potential effect on your body as ingesting the equivalent amount of strontium or cesium, that that would give us 1 millirem internally? Is that what you're saying?

MR. GERUSKY: If the doses are the same to the same organs, it will be the same effect.

(The audience voiced boos, hisses, and jeers.)

MR. GERUSKY: What I said was, "whole-body exposure" is "Whole-body exposure"; or "exposure to an organ" is "exposure to an organ" as you relate those, and you are not going to get --

if you take iodine-131 in the body and it goes to the thyroid, it is not going to give you the same effect as would the water containing the strontium-90 that goes to the bone. But if you take a whole-body exposure from both of those sources, the results would be the same.

MR. LUDER: Isn't the major danger of the radioactive isotopes from the generating plant, isn't the most serious danger the accumulation of any of these artificial elements in our bodies, rather than the natural dose we receive from outer space and from the earth?

MR. GERUSKY: No, because the accumulated exposure is taken into consideration in determining the total dose received as a result of the action at the plant. Internal exposures are considered to have a biological half-life inside the body, and the total dose accumulated by the body as a result of ingesting the material is one that is used; not the short-term --

MAYOR MORRIS: Sir, I think you have attempted to make your point. I think if you could go into your questions relating to the EIS it would be very helpful. We do have -- We are almost down to two hours at this particular point. I am sure there are a lot of questions particularly on this very big, thick document here. I'm not saying the questions aren't related to Three Mile Island in general at all, but I think we should get onto this thing before we run out of time.

MR. LUDER: I understand.

On one of the very first slides that was shown, one of the purposes of the EIS was to focus on environmental issues and alternatives before commitments to specific choices were made to cleanup.

To that sentence, I would like to ask John Collins why he thinks Metropolitan Edison is squandering the limited resources they have in building a submerged demineralizer system which has had no okay at all, and could potentially be actually not okayed for use. This could be a tremendous waste of the new small resources they have. Is this true?

MR. COLLINS: Certainly it is true. The NRC, as you know, twice now has in certain correspondence told Metropolitan Edison that they are proceeding at their own risk. They believe they can demonstrate to the Commission in their technical evaluation report that it is an acceptable system.

We are not in a position to make that determination until after the Programmatic Impact Statement has been issued in final form, and they are well aware of that.

MR. LUDER: Well, do you think that --

MR. COLLINS: But really, proceeding with that SDS system does not represent a large amount of money that could be put off on some other system, or some other cleanup operation. You know, when you are talking about the amount of dollars for the SDS system compared to the $700 million or $800 million that

will be spent for the total cleanup operation itself, it is a very small amount of money.

MR. LUDER: Well, I was going to compare it with the $35 million aid that they had not gotten, and this had cut their program virtually in half.

MR. COLLINS: No, the $35 million in reality, the $35 million is just an amount of money that would take care of the plant in a safe shutdown condition and would enable them to do the operating and maintenance to maintain the plant in its safe shutdown condition. It would not really move the plant any further along in the cleanup operations. That is all the $35 million would gain them.

MR. LUDER: In other words, they are requesting emergency relief just to assure a semblance of safety to the individuals who live around here?

MR. COLLINS: They have requested emergency rate relief to provide them additional cash flow to continue the operations down there, because they were running out of cash flow.

MR. LUDER: So in other words, if it wasn't for this new rate increase, they wouldn't have the money to keep us safe?

MR. COLLINS: They have enough spending level right now at $35 million to keep the plant safe, and we will insist on that. That is what I mentioned earlier this evening. The NRC's policy is that we are not going to in any way lessen the

programs; that we will require that they meet all of our health, safety, and environmental requirements; and they do have that money to continue that program.

The next question is: Do they have enough cash flow money to proceed on a short-term basis to get over to the next year for the long-term rate increase? Do they have monies to proceed with the cleanup of various parts of the plant? That is the question that is being decided now.

MR. LUDER: I have many questions, but I will give up the floor voluntarily.

MAYOR MORRIS: Thank you. If there is time later on in the program and you want to get up again, please do so.

STATEMENT OF TOM SMITHFALL

MR. SMITHFALL: My name is Tom Smithfall from Marietta, Pennsylvania. I need some clarification on that last question that was brought out there. It deals with your introduction that you have.

MR. COLLINS: Yes.

MR. SMITHFALL: It states in there that you will focus on environmental issues and alternatives before commitments to specific cleanup choices are made.

As evidenced by your comments to Vince, it appears that EPICORE-II, the SDS system, and the construction of the rad waste staging facilities are not "specific cleanup choices."

My question is: I think there is a discrepancy in

your introduction and what is actually occurring at the plant.

MR. COLLINS: I don't really see it that way. Certainly, first of all, the SDS has not been approved by the Commission. We have not condoned its --

MR. SMITHFALL: They have begun construction.

MR. COLLINS: Absolutely. We acknowledge that. But we have not given approval to them using that system. If, through our evaluation, we determine that that is not an acceptable system, Metropolitan understands and are proceeding at their own risk that that system will have to be taken out.

MR. SMITHFALL: Why are you allowing a licensee to continue spending money on a system that is not approved for use when they are already in a situation that they may not have the financial viability to even continue with the cleanup?

MR. COLLINS: Well, actually the $35 million spending rate right now, if that's what they are held to, pending further clarification from the PUC as to what monies they can use, if they cannot use monies generated from the rate payers for cleanup activities, then the mode of operation would be put into maintaining those operations at the plant to keep the reactor in a safe condition, and deleting programs that would be associated with cleanup -- one of which would be the SDS system.

Now the NRC cannot dictate to the licensee what monies they can spend. We can tell them what system we will

accept or we won't accept. You mentioned the "EPICORE-II System." You have to recognize, too, that the EPICORE-II System was developed within days after the accident -- the start of the accident -- when it was recognized that there would be a need for a water treatment system to clean up the large amounts of water that was being generated as a result of the accident. They are two entirely different circumstances.

MR. SMITHFALL: I guess what I'm thinking of, there have been systems that have been suggested by the licensee to be used for the cleanup process -- EPICORE-II being one of them. You then approved the process to be implemented. The same thing with this SDS system. It was proposed by the licensee to be used without your approval, and then I assume it will be approved.

MR. COLLINS: I don't think that's --

MR. SMITHFALL: I would like to finish with my comment and then ask a question.

It appears, then, you are setting precedents for the processes that the licensee has proposed.

(Applause.)

MR. COLLINS: I think that's a very wrong assumption to make, that the NRC will approve it.

MR. SMITHFALL: It appears that the record, as given to me, I should say, gives reason to believe that.

MR. COLLINS: No, I think the record will show that

the necessity for the EPICORE-II System was during the height of an emergency and it was necessary to make sure that a water treatment system was in place to handle the water. You just couldn't keep building up water without processing the water. So the circumstances were entirely different.

MR. SMITHFALL: I'm worried about your precedent-setting. I am worried about you saying that these can be used, and then eventually, as you've proposed here this evening, that the safest solution is to dump it in the Susquehanna River.

MR. COLLINS: No, I did not say that the safest solution was to dump it in the Susquehanna River.

THE AUDIENCE (in unison): Yes, you did.

MR. COLLINS: I said I thought it would be "possible" to put it into the Susquehanna River; that there would be no environmental impact. But I was quick to point out -- and it is even on the slide -- that the Commission has made no decision as to what method will be used for disposing of the water -- none whatever.

MR. SMITHFALL: I will go on to something else.

MAYOR MORRIS: Before you do that, I meant what I said earlier, that you give the gentleman an opportunity to respond to questions, and please don't interrupt him. If you disagree with him, you have an opportunity to speak that and say that. But the very least you can do is to give the individuals here an opportunity to respond to the questions.

Sir, if you have a question, now, please go ahead.

VOICE: That goes both ways. Both ways.

MR. SMITHFALL: Were you referring to me?

MAYOR MORRIS: No, I was not.

MR. SMITHFALL: Section 1.3 of the PEIS states a summary of Metropolitan Edison's objectives, proposed actions, and schedule. When the licensee presented their schedule for Phase I and II, which are containment entry and decontamination and fuel removal and coolant decontamination, did they at that time present to you a third phase which would, I presume, have dealt with the reconstruction for operation at that time?

MR. COLLINS: No, they did not.

MR. SMITHFALL: My question then is: How can you put the horse before the cart? How can the NRC approve Phases I and II without knowing the ultimate disposition of the plant?

MR. COLLINS: Because, as I indicated to you in the beginning, no matter whether you want to decommission the plant, if that decision is made, or to restore the plant, it must be cleaned up to the same level. The cleanup methodologies would not change if you decided on decommissioning, or whether you decided to restore it. The objective now is to clean up the plant.

The decision as to what will be done with it will be decided later.

MR. SMITHFALL: Thank you.

MAYOR MORRIS: You're next.

STATEMENT OF WALDEN RANDALL

MS. RANDALL: My name is Walden Randall. I live at 341 North West End Avenue, in Lancaster City.

Before I begin, I would like to comment. I have been to many meetings with the Nuclear Regulatory Commission, and I appreciate you being here this evening. However, I am becoming increasingly concerned that these meetings are an opportunity for us to ask questions, but if we do not feel that a full explanation has been offered, or if we still have more questions -- such as this crowd which has now grown to probably over 300 -- it's not a satisfactory way to allow the public to comment.

My first question would be to Mayor Morris: Mr. Collins says the decision has not been made whether or not to dump the water into the river. All the way through the document is "if approved." Lancaster City under Mayor Wolten (phonetic) has an agreement that no water that is accident-generated or cleanup water will be allowed to enter the river -- God help us -- from an accident or a mistake, be allowed to enter the river until the Final Environmental Impact Statement is completed. That will be March, 1981. Am I correct, Mr. Collins?

MR. COLLINS: That is correct.

MS. RANDALL: At that time, if the Commission so decides, the agreement with the City is void. Is that correct?

MR. COLLINS: No. At that time, the licensee would propose to the Nuclear Regulatory Commission a method for disposing of the water. At that time, the NRC Commissioners would take that proposal under consideration and make a decision on it.

MS. RANDALL: Mayor Morris, if the decision at that time is made to dump the partially treated filtered water into the river, have you and your staff and your legal advisors had time to read this PEIS and make a decision as to whether or not you will not allow that to proceed?

MAYOR MORRIS: Well, I'm going to answer the question that you just asked, but I do want to make it clear that I am not here to answer all kinds of questions. I am attempting to moderate tonight, but I will answer your question that you asked.

First of all, I believe it was Mayor Morris who ended up signing that agreement, because it happened after Mayor Wolten left office. That can be checked, but I believe I was the person who signed the agreement.

Secondly, we have the Solicitor here tonight, and we have the City's staff here tonight, and we will be making comments in writing to the NRC which will be publicized in the local news media, prior to the expiration date of the comment period. So we will be responding actively to what this says.

But is not my attempt tonight to encourage people to comment in one direction or another; but, rather, to have

people get up and give their views. But we will be commenting on it. We will be reviewing it. We have begun, but it is very thick, as you suggested.

MS. RANDALL: I had one other question which I wanted to raise on Section 10 which deals with the desilting basin at the site which will be used to store the canisters containing the resins from the EPICORE procedure and, if approved, I assume the SDS resins. Is that correct?

MR. COLLINS: That's correct, the second and third stage SDS. The first stage SDS will be stored in the fuel pool itself.

MS. RANDALL: Those resins will be high-level waste? Is that correct?

MR. COLLINS: The first stage will be high-level -- Well, "high activity waste," not "high-level waste." There is a difference.

MS. RANDALL: Right. One is only spent fuel.

MR. COLLINS: That's correct. "High-level waste" has been defined in the regulations. We refer to this as "high-activity waste," and we have recognized that such waste should not be disposed of in shallow-land burial. And until such time as the disposition for that waste has been found, we will store it in the concrete structure on the site.

MS. RANDALL: The high-activity waste in the canisters in the shallow burial site in the desilting basin are projected,

according to your document, to be covered by a probable maximum flood for only four days. Could you please tell me where you get the figure that if there is to be another Agnes, or another flood on the Susquehanna River, that your high-level activity wastes inside the canisters would only be exposed to a continuous water path for four days?

The reason I ask the question is that I have served on the Lancaster Planning Commission. I am now the Land Use Advisory Chairman for one of the Subcommittees, and in all of our meetings we have become increasingly aware that flooding problems on the Susquehanna River are increasing; they are not decreasing.

The "probable maximum flood" is Agnes? Am I correct, in 1972?

MR. COLLINS: That is exactly right, and that is what the dike area is designed to take, an Agnes-type flood, and so is the concrete structure itself designed to take the Agnes-type flood.

MS. RANDALL: The Agnes-type flood happened in '72?

MR. COLLINS: '72, correct.

MS. RANDALL: It is now 1980, and every official government document -- the National Flood Insurance, Watershed Basin Studies, Pennsylvania Act 282, Storm Water Management, passed by the legislature last year -- the volume of a flood on this river is increasing yearly. It will continue to increase

as various areas are paved over and become impermeable, which means that as the rain falls, the water hits the river faster; it doesn't have time to be absorbed by the ground because the ground is covered by asphalt.

I question the storage of any high radioactive waste on an island based on a design-basis flood which was prior to the probable maximum flood, and then a probable maximum flood that is eight years old. I think that you may in fact be placing the canisters of high-level waste -- high-activity waste in a shallow burial site where there could be an extremely serious flooding problem. Those canisters could then be -- the contamination within the canisters would then be spread all the way down the river and into the Bay.

I think that is terribly alarming, and I would like your reaction.

MR. COLLINS: Well, I think my reaction to it is: Even if the concrete structure itself were to be inundated, it does not necessarily follow that the steel liner will disperse out the radionuclides and the resins and mix them in the Susquehanna River.

Those liners are steel liners, sealed liners. They are in concrete vaults with a 3-1/2-foot-thick concrete shield block on top of it. There is a subsystem that monitors any leakage of water, including water that may seep in from the outside.

So I don't think it necessarily follows that if you had a flood worse than the Agnes-type flood, that it would disperse the material out into the Susquehanna River.

MS. RANDALL: Is there no burial site available in the country that can take those canisters, other than leaving them on the Island at this time?

MR. COLLINS: Well, the reason they're being stored on the Island at the present time is that the Commission, in its order in November o Metropolitan Edison Company, ordered Metropolitan Edison to solidify all of the resins, either in concrete or some other solidification agent, prior to shipping those resins off-site. If that order were not in effect, it would be possible to ship those resins out to Richland, Washington.

MS. RANDALL: Even though they're high-activity waste, they are acceptable?

MR. COLLINS: Well, when you say -- There are the first-stage liners at the present time from the EPICORE which is what we would consider to be a higher activity waste; but there are two other stages. So those stages, the second and third stage resins, could be shipped out if it were not for the Commission's order to solidify all the resins generated from cleaning up the water.

MS. RANDALL: And yet, I don't see anywhere in the document the solidification process underway. So we've become

a high-activity waste disposal site.

MR. COLLINS: Well, at the time the Draft Environmental Impact Statement was prepared, Metropolitan Edison was engaged in the technical development of looking at various alternative ways of solidifying the agents and solidifying the resins. That is rather complex, because the resin mixes themselves are not uniform from liner to liner and, because of that nonuniformity, it would require an adjustment in what type of solidifying agent you would use and what mixes of solidification you would use.

They are investigating those, together with their consultants from Oak Ridge National Laboratory, and with other contractors that are engaged in this evaluation.

MS. RANDALL: If they were solidified, is there a site available in the United States to which they can be sent? Or must we await the development of a deep geological repository somewhere else in the country, approved by the Department of Energy, which no one has been able to find since 1941?

MR. COLLINS: No, these resins would not find their way nor are they intended to go to a deep respository geological formation. What we are looking at is a site that would be suitable for deep burial, rather than shallow-land burial. And it may even be that we want to engineer a facility, or go to a strong type container, before you put it into the ground to add to the long-term integrity of that

container. But there are sites where it can be handled, and those decisions and those discussions have been ongoing with the Department of Energy for some time, and we are continuing those discussions.

Right now there is no decision that has been made as to what to do with the higher activity waste. The second and third stages, there's no question; they can be solidified and shipped to Richland.

MS. RANDALL: Thank you very much.

MAYOR MORRIS: Yes, sir.

STATEMENT OF JOHN ADAMS

MR. ADAMS: My name is John Adams. I live at Riverview.

The Clean Water Act prohibits discharge of radioactive waste into navigable waters causing further dilution and dispersal of radioactivity into the environment.

Would any proposed dilution of radioactive processed waste -- accident or cleanup -- conforming to NRC standards discharged into the Susquehanna violate the intent of the Clean Water Act?

MR. COLLINS: I must admit that I was not aware that the Clean Water Act, as originally published, prohibited discharge of radioactive waste into navigable water. I believe, if you're talking about a recent amendment to the Clean Water Act -- I'm not aware that the original Clean Water Act that

came out in the latter '60s made that stipulation.

MR. ADAMS: Well, if it is the case --

MR. COLLINS: It certainly may be, and I can't really -- I'm not that familiar with all of the events that have occurred on the Clean Water Act. But certainly if that is true, we will certainly look into it if your comment is correct.

Would the proposed dilution of radioactive processed water conforming with standards' discharge -- Right now, from what I know of the Clean Water Act, it would not violate the Clean Water Act.

If you are saying that amendments have been made that would prohibit this, then of course that is a matter that we would have to review, certainly.

MR. ADAMS: I would like to ask another question, or make a comment on a point brought up about the workers' exposure at the plant.

I feel it is somewhat contradictory to call the workers, or mention that they're "apart from the general public"; yet, their genetic effects are increased over the general public, and they will continue to father and mother the children that will become part of the "general public."

Now I feel that that is an erroneous statement to claim that they're "apart from the general public."

MR. COLLINS: Well, I will say a few words, but you

must recognize that there is the occupational work force, and the Commission has set forth regulations governing the occupational worker that is involved with handling radioactive materials.

There is a distinction made between the amount of radiation that he can receive versus what members of the general public receive. Because, first of all, there is a different age group. When you're considering members of the public, you are considering all people of all ages from birth to death, and you are considering the difference in the sensitivities of people. Whereas, in the working force you are considering people between the ages of 18 and 60 years old -- and with the recognition that he is an occupational worker involved in handling radioactive materials.

Tom, do you want to answer that?

MR. GERUSKY: The number of people employed and thus exposed to radiation in the atomic energy industry or the radiation industry is small compared to the total population. That is one reason that a distinction can be made.

The other reason is the one that John gave. That is, that it is a decision that is made by the individual who is working, whether he wants to be employed there and receive that radiation exposure. He is given training and some information, at least -- hopefully better information than a person in the general public would get on what his exposure --

what the effects of his exposure will cause. It is his decision to make.

In the general public, usually the decision is not one that can be made by a member of the general public, whether or not he wants to continue to get exposure from a variety of sources. And that is another reason for the exposure levels to be considerably lower.

MR. ADAMS: Thank you.

MAYOR MORRIS: Thank you, sir.

Yes, sir?

STATEMENT OF DAVID DOBBINS

MR. DOBBINS: Hello. I am David Dobbins from Wellington Road in Lancaster. I have a couple of questions.

This PEIS Statement gives alternatives to the disposal of the radioactive water -- or processed radioactive water. Who is responsible for choosing the alternative to be used of the many that are listed in this document?

Secondly, once that choice has been made, will the public be allowed to have comment and review on that?

MR. COLLINS: First of all, the choice would be made by the licensee, Metropolitan Edison. They would propose to the NRC, and the Staff would receive and evaluate that proposal, and then recommend to our Commissioners the action which they deemed they should take.

At a Commission meeting involving a discussion on

that item that would normally be in an open meeting -- which all of the Commission meetings must be under the Sunshine Act -- and the public certainly may appear at that meeting and offer comments.

MR. DOBBINS: Okay. Will the comments given at this meeting and the meetings like this, along with the comments that are requested by November 20th -- How will those comments be incorporated into the final draft, or the final copy of the draft?

MR. COLLINS: I missed the first part. Could you speak into the microphone?

MR. DOBBINS: The comments that are given at meetings such as this one --

MR. COLLINS: Yes.

MR. DOBBINS: -- and also the comments, the written comments that you would receive by November 20th of this year, how would those be incorporated into the final copy of the PEIS?

MR. COLLINS: Well, all of the comments, whether they be at meetings such as this is, which is being reported, or those received in letter form, will be reviewed by the Staff. The Staff will go over this transcript and pull out those comments by individuals, and they will be addressed and considered in the Final Environmental Impact Statement.

MAYOR MORRIS: David, could I go back to your first

question? Were you asking whether there would be public meetings to discuss the choice that was taken? Or were you saying: What forum would there be available? Did I misunderstand your question?

MR. DOBBINS: I was interested in actually if the public would have a comment on the choice of the alternative chosen. What kind of forum, as you mentioned. Or would there be public input?

In other words, do we have any kind of commentary on the choice chosen? Because one of the choices is dumping the water into the River.

MR. COLLINS: Well, I think going back again, first of all you certainly have the right to comment on it now as to which particular alternative you would favor. Then, as I indicated to you, the licensee would propose to the NRC -- they would send me a letter saying, "we proposed to do such-and-such."

The Staff would then evaluate that, and propose or recommend to our Commissioners whether or not we accept that proposal. If we did not, what alternative we would propose. And the Commission would ultimately make that decision.

Now if the Commission when it is briefed by the Staff -- that is an open meeting, and the public certainly can be in attendance at the Commission meetings and voice their opinion. Now usually what happens is that an item such as

this is discussed at a briefing, and then the Commission takes it under advisement. And they may even allow for a comment period, such as they did on the Environmental Assessment. They allowed the public to review those before they took final action.

There are a number of courses that are open to the Commission, and really it depends at the time that it is presented to them as to what their action will be.

MR. DOBBINS: Am I understanding you correctly when you say that when Metropolitan Edison chooses the alternative of the various alternatives, that the Nuclear Regulatory Commission is going to have to okay that alternative, even though it is in the PEIS?

MR. COLLINS: Absolutely. Metropolitan Edison, everything they do down there must be reviewed and approved by the NRC.

MR. DOBBINS: On the final form of the PEIS, will there be public hearings on that final form?

MR. COLLINS: Will there be what?

MR. DOBBINS: Public hearings.

MR. COLLINS: Public hearings?

MR. DOBBINS: Yes, where there will be cross-examination --

MR. COLLINS: You mean, adjudicatory hearings?

MR. DOBBINS: Yes.

MR. COLLINS: No. Under the Commission's regulations, that is not required for an Impact Statement such as this. So an adjudicatory hearing is not required under our regulations.

MR. DOBBINS: So if that is the case, then what you are saying is, the only time we will have a chance to comment on the final form is at the Commission meeting for consideration of the alternative?

MR. COLLINS: Well, you recognize that at the time the PEIS is finalized and the Commission publishes it, at that time it does not say that this is going to be the alternative selected.

What I am saying is: The document that you have now will be finalized in the form that it is now, making no specific recommendations. Once the document has been published, then the licensee would propose certain methods for cleaning up the various parts of the plant. He would ask for that permission.

That would come back to the Staff as a letter saying: NRC, we want to dispose of the water in this way. The Staff would then evaluate it and make a recommendation to the Commissioners, and they would make the decision. And that could be months after the PEIS has been finalized, not the day after.

MR. DOBBINS: Okay. And this particular choice, then, is at the Commission meeting that we would have input on

the choice?

MR. COLLINS: Well, let me say that you can "attend" the Commission meetings as a member of the public, because the Commission meetings are open to the public.

MR. DOBBINS: I would recommend having meetings like this one on the choice, particularly in this area since it affects the people in this area, as well.

(Applause.)

MR. COLLINS: Your comment is a matter of record, and the Commission of course will be reviewing the transcripts along with the Staff. And certainly I will make them aware of your concern and the feelings of the public in this area.

MAYOR MORRIS: Thank you.

Yes, ma'am?

STATEMENT OF DEBORAH THOMPSON

MS. THOMPSON: My name is Deborah Thompson. My address is 1302 Willow Heights in Lancaster.

Rather than ask you a question, I would like to make a brief statement, and I would welcome any comments you might care to make to that statement.

The scope of the Programmatic Environmental Impact Statement, as it stands, is inadequate. Before any cleanup actions proceed, the following factors should be more fully addressed by the NRC.

First, the decision whether to commission or

decommission Unit 2 must be fully addressed to make an intelligent cleanup decision and, by doing as little cleanup as is necessary, forestall the possibility of more environmental contamination.

Secondly, the disposition of high-level wastes must be fully addressed before a decision to produce more wastes is made. TMI cannot function as a waste repository without endangering the health of our community.

Thirdly, public safety and health factors are not adequately considered in the PEIS. Stress will not be alleviated by the speed of cleanup as is suggested in the Environmental Impact Statement; but, rather, by competent decisions based on concern for health and safety of the community in proportion to concerns for Metropolitan Edison's financial viability.

Fourthly, radiological effluent criteria for the community during the cleanup process must consider the accident-generated releases. Only in this way would the total effects of TMI and the accident on the community be accurately addressed. In setting these radiological effluent criteria, the accident releases must be honestly and openly reflected.

Fifthly, the dilution of contaminated water to Federal Drinking Water Standards is not an acceptable method of cleanup for persons who drink, bathe in, and use the Susquehanna River for recreational purposes.

(Applause.)

In conclusion, I would urge the NRC to be more responsive to the public comments you hear tonight and you will receive in writing than you were vis-a-vis the public comments you received concerning the venting of krypton-85.

(Applause.)

MS. THOMPSON: In conclusion, I would urge the NRC to be more responsive to the public comments you have received tonight and that you will receive in writing than you were vis-a-vis the public comments you received concerning the venting of krypton-85.

(Applause.)

MAYOR MORRIS: John, would you or anybody else up here like to comment on that comment?

MR. COLLINS: Well, you covered a number of subjects, and I would be happy to take each one of them if you want me to.

MS. THOMPSON: I would.

MR. COLLINS: Do you want to repeat them for me, because I wasn't taking notes on them.

MS. THOMPSON: The first point was the decision to commission or decommission Unit 2 must be fully addressed.

MR. COLLINS: The reason it was not -- as I pointed out before -- it does not matter whether you decommission the plant or restore it, the plant must be cleaned up, the fuel must be removed, and the primary system must be decontaminated.

And it doesn't really matter, because if you decommission the plant, you tear it down, you mothball it, it must be cleaned up to the same level as if you wanted to go in and remove the equipment and restore it, and refurbish it, and put it back on the line, to the same level. It does not really matter whether that issue is specifically addressed or not. That is going to be decided at another time. The plant has been ordered shut down by the Commission, and it will not start up without going through a very lengthy hearing process.

MS. THOMPSON: The next point is, the issue of high-level waste must be fully addressed.

MR. COLLINS: Well, when you -- the disposition of the high-level waste, are you suggesting that the cleanup operation be deferred until such time as the solution to the high-level waste problem occurs? I don't think that that is being realistic, either, because the longer the plant sits there without cleaning the plant up, it is being subjected to deterioration and the potentials for releases to the environment.

I will not argue the point that there is a need to answer the high-level waste -- repository of high-level waste problem. I think that the Federal Government must move more responsibly and in a faster way to finding solutions to that problem. But that in no way should stop the effort to clean up TMI-2.

MS. THOMPSON: The third point: Public safety and health factors are not adequately considered.

MR. COLLINS: I'm not really sure I understand what you mean there, because I think they were. The impacts have been addressed. We did indicate what the dose would be -- the maximum dose to the offsite population. We discussed the dose to the population within a 50-mile radius of the reactor. I guess I'm not clear as to what you mean by your statement.

MS. THOMPSON: Would you like me to elaborate?

MR. COLLINS: Sure. Fine. I think it would be well to note for the record what you meant.

MS. THOMPSON: In saying that the public safety and health factors were not adequately considered, it was my feeling and the feeling of many people that I know that there were other concerns that were more important to the NRC than the health and safety of the community. Namely, the financial considerations and various decisions, the effect of the cleanup decisions on the continued operability of the plant. We feel, many people in the community feel that no environmental releases in the cleanup process is the only acceptable standard for the public health and safety.

And while I realize that it is difficult to achieve that standard, we feel that the NRC and Met Ed can choose alternatives and consider more fully alternatives that would permit you to reach that level.

MR. COLLINS: First of all, I don't think that's correct in saying that we are choosing alternatives that would help Met Ed's financial stability. Our concern is that we pick those alternatives and expedite as quickly as possible the cleanup of the plant, irregardless of the cost.

Now cost is not a major factor in the NRC's decision-making process. It is difficult, I should say, to end up with cleanup operations where there is a zero release. There is no such thing as a "zero release" plant. But we have achieved through our regulations -- at least we strive for maintaining those releases as low as reasonably achievable -- as low as reasonably achievable -- and those are written words into our regulations.

In fact, the criteria being applied to Met Ed is more stringent than is being applied to any operator of a power plant today. So that, in that regard we do have a concern for the protection of the health and safety of the public.

MS. THOMPSON: The fourth point: Radiological effluent criteria must consider the accident-generated releases.

MR. COLLINS: Well, of course the document did not address the environmental impact associated with the accident itself. That has been well documented in the many reports that have been issued as a result of the accident.

MS. THOMPSON: Excuse me. Specifically, I was

referring to the statement in the Impact Statement which says: "The proposed procedures should be designed to assure that the offsite doses resulting from releases, when added to the doses from releases over the previous year, do not exceed the numerical design objectives of 10 CFR Part 50 in Appendix I."

MR. COLLINS: Appendix I?

MS. THOMPSON: Appendix I.

MR. COLLINS: And what you're saying is that we should consider that the cumulative effect --

MS. THOMPSON: Yes.

MS. COLLINS: Frank, would you like to address that?

MR. CONGEL: The one point I would like to make regarding the doses in the cumulative doses is the fact that the impacts that were calculated or estimated for the cleanup and discussed in the PEIS represent, as I said some time ago, virtually a negligible impact in terms of at least the numerical quantities that we came up with. I had to put that qualifier in because I realize I have probably a perspective, or maybe a sense of objectivity that would characterize it in that way. But the fact of the matter is, we did consider what this lady was addressing a moment ago: That is, the cumulative impact, the additional impact that was discussed and stated even on the slides, is negligible. It is very, very small.

We came up with numbers of risk factor of 10^{-6}, 10^{-7}. I don't know how we could talk about numbers any smaller

than that.

MS. THOMPSON: My final point was: Dilution of contaminated water to Federal Drinking Water Standards is not an acceptable method of cleanup.

(Applause.)

MR. COLLINS: Again, I don't understand the rationale for the statement, because the Environmental Protection Agency's drinking water standard at 40 CFR 141 is the one you are referring to.

MS. THOMPSON: If I could clarify, my rationale for that is dispersal of poison; it is not removal of poison. It simply spreads the poison around, rather than reducing the actual level of contamination. And I feel that if you dilute the contaminants in the water to the drinking water standards, all you're doing is diluating it. You are not reducing the level of contamination that people are exposed to.

MR. COLLINS: But that is cleaning up the water to the drinking water standard before it is dispersed into the Susquehanna River. By the time it would reach the nearest intake structure, you couldn't measure the activity. It would be too low. And that is when actually the drinking water standard is applied in a water distribution system, not at the outfall of the plant.

It says -- if you read the drinking water standard -- it says: In the distribution system, this is the allowable

radioactivity. It is up to the water distribution system that they're in compliance with the Environmental Protection Agency's drinking water standard.

MS. THOMPSON: Thank you.

(Mr. Morris takes a drink of water.)

(Laughter.)

VOICE: That's bottled water. You can't fool us.

MAYOR MORRIS: That was right from TMI.

(Laughter.)

MAYOR MORRIS: You're next.

STATEMENT OF DONALD CRYDER

MR. CRYDER: You can't fool me, Mayor Morris. I know that's bottled spring water.

(Laughter.)

I don't know who to address this question to --

THE REPORTER: May I have your name, please?

MR. CRYDER: Donald Cryder, 108 North Plum Street, Lancaster.

The first conclusion that was in the slide stated that total whole-body dose to individuals offsite should not exceed 1.6 millirem.

Now what does that mean? Does that mean, as a result of the proposed cleanup the offsite exposure to the radioactivity? Is this the projected from any method of cleanup and disposition of the waste?

MR. COLLINS: Would you repeat that? Because I really did not follow your whole question.

MR. CRYDER: Okay. One of your slides stated, or you said: The total whole-body dose to individuals off-site should not exceed 1.6 millirems. That was your first conclusion.

Now what do you mean by that? Is that a proposed from the --

MR. COLLINS: That is taking the various alternatives--

MR. CRYDER: Okay, so this is an estimated of all the proposed --

MR. COLLINS: Yes. This is not one specific --

MR. CRYDER: Okay. So how did you come to this conclusion? Did it involve people in a 50-mile radius of the site?

MR. COLLINS: The 1.6 is the maximum that an individual would receive -- the maximum, if he were at the critical boundary of the site.

MR. CRYDER: Okay. Okay, then further in that same conclusion you state: The risk of cancer, death cancer, is --

MR. COLLINS: The "risk," right.

MR. CRYDER: -- is 2.2 in 10 million --

MR. COLLINS: -- is 2.2 in 10 million.

MR. CRYDER: Do you mean that a certain number of people exposed to that amount of 1.6 millirems of 1.6 millirems of radiation, 2.2 in 10 million of those -- if there were

10 million there -- will get cancer as a result?

MR. COLLINS: Yes. That there is a "potential." There is a "risk" that they may.

MR. CRYDER: Okay, there's a potential, but --

MR. COLLINS: It doesn't say that they "will" get it.

MR. CRYDER: -- this is an average. There are -- I believe there is a difference in the amount of radiation that various people can take without having side effects. For instance, females, I understand, develop breast cancer more readily than males; and babies may be more sensitive. So this is an average? Is this right?

MR. COLLINS: This is an average of the people in the population.

MR. CRYDER: Okay, averages are never precise.

MR. COLLINS: Well, it does consider the sensitive people in the population, too, because it represents a suitable sample of the population. So you're looking at all of what you're saying.

MR. CRYDER: Okay. Now let's say that this projection is wrong. Suppose, instead of 1.6 millirems, people just offsite of the reactor building are exposed to 3.2 millirems. Now would the risk of cancer increase linear to that? Would it double if the exposure is doubled? Or would it be exponential? In other words, like 10 percent -- that there is a 10 percent risk of cancer?

MR. COLLINS: It would be linear.

MR. CRYDER: Okay. At what point, then, would you know that a person who receives X amount of millirems that causes death? Would you know that?

MR. COLLINS: I'm sure Frank will.

MR. CONGEL: I would like to try to shed a little bit of light on the line of questions that you were having.

In our health effects' analysis, we used what is called the "linear no-threshold hypothesis." That is, there are no data to indicate what the effects are at very low dose levels. But what is generally accepted in the field now is what they call a "linear extrapolation" from the area in which they have effects noted and demonstrated at certain dose levels.

What you do is, you would look at the behavior of the effects, or the manner in which they manifest themselves at higher dose rates, and then extrapolate down to where you have zero at zero dose -- zero effects at zero dose.

To get, then, the effects of the kind of dose rate that we're talking about here, we would just look at points on this curve. It's called "linear extrapolation."

Now earlier when I was talking, I mentioned the report of the National Academy of Sciences that came out this past summer. They have analyzed the available data, and they have come up with an estimate of effects at low dose rates that indicate even lower effects than what we have proposed in

our document. They have two methods of looking at them -- the linear no-threshold hypothesis; and also the so-called quadranic relationship to express dose and effects at low dose rates.

In any case, I don't want to get carried away with the analysis, but the point is: We don't have any hard data. What they had to do was look at the various data that were available from the human beings who had been exposed, either accidentally or intentionally as in the case of warfare, and anticipate what kind of doses we have.

I would point out that the overwhelming majority of people in the field feel that, if anything, this was likely to overestimate what the real effects would be. But for the purposes that you were describing, indeed if you went from 1.6 to 3.2 millirem, you would go from 2.2 changes in 10 million to 4.4.

MR. CRYDER: Okay. I would also like to ask: What is considered a "high level" of exposure, as opposed to "low level"?

MR. CONGEL: Well, I would, firstly, say "high levels of exposures" are in the 50 rem and greater dose rate.

MR. CRYDER: 50 rem?

MR. CONGEL: That's just a number I pulled.

MR. CRYDER: Then the second conclusion, that a man could stand in front of a truck for three minutes at three feet

would receive 1.3 millirems, there's a possibility the man could stand there for an hour.

MR. CONGEL: That is correct.

MR. COLLINS: Let me answer that, Frank. All shipments of radioactive waste, as I indicated earlier, must meet the NRC and the DOT regulations. Our regulations require that all radioactive shipments, that the dose on contact of that shipping container not exceed 200 millirem; and that the dose 10 feet from the container itself not exceed 6 millirems.

So that if you were to stand there even for doubling that number at, say, 6 millirems, if you were that close to it, instead of one hour he's going to receive 6 millirems, in two hours it would be 12 millirems.

But it is highly unlikely that an individual would be standing there in front of a moving truck for a number of hours.

(Laughter.)

MR. COLLINS: Even if it were broken down, the truck would be -- There are two drivers on the truck and --

MR. CRYDER: What about the drivers?

MR. COLLINS: What about the drivers?

MR. CRYDER: What kind of precautions will be taken for the driver?

MR. COLLINS: What about the driver?

MR. CRYDER: Yes.

MR. COLLINS: The dose inside the cab cannot exceed 2 millirems for the driver. Most of the shipments that I have seen leaving TMI, the dose in the cab has been on the order of .2 millirems.

MR. CRYDER: .2 millirems?

MR. COLLINS: Per hour.

MR. CRYDER: Per hour?

MR. COLLINS: .2 millirem per hour.

MR. CRYDER: Thank you.

MAYOR MORRIS: Thank you, sir.

Yes, ma'am?

STATEMENT OF BEVERLY HESS

MS. HESS: I am Beverly Hess, and I live at RD #1, Columbia.

I have a couple of questions that have to do with the oversight of NRC. Is NRC operating under National Environmental Policy Act considerations in the cleanup process as outlined in the EIS, Mr. Collins?

MR. COLLINS: Yes, we are. We are operating under our 10 CFR Part 51, which implements the National Environmental Policy Act.

MS. HESS: That is what I had understood.

I would like to state a concern. I read that the National Environmental Policy Act does not require that an agency select the most environmentally beneficial alternative;

but only that it understand the environmental consequences of its actions and consider them in its decision-making. An agency may proceed with an action that involves environmental damage if it is convinced that there are economic and technical benefits that override the environmental drawbacks.

I am very concerned, as I understand what is being said here today, that there will not be an opportunity for the public to do anything more than comment on what we consider to be the environmental consequences of the alternatives that are being outlined, and which will be chosen.

(Applause.)

At the time of the elections in the spring, President Carter said that he would make the health and safety of the people of the Three Mile Island area the primary consideration in the cleanup. As I understand these regulations, that is not being said; that that primary consideration has to be the overriding concern.

And I would like to know, Mr. Collins, what -- I mean, other than the public comments, and I understand that this is being reported, and I understand that there will be opportunities for public comment to be taken again -- but since the Staff recommends to the Commission, and the licensee recommends what shall be done, at what point -- or does, or will -- the public ever have an opportunity to say what they consider must be done in this instance that affects our lives?

MR. COLLINS: Well, I think that, as I mentioned to you, there are two alternative ways that you can participate in the decision-making process. One is to comment on the Environmental Impact Statement as it appears today; and in commenting on it, the level of specificity in outlining those alternatives which you feel are better than any other alternative is one mechanism.

I think the other mechanism is to appear at such time that the Commission meets on an individual proposal, to meet at that time and voice your opinion.

MS. HESS: So again, "comment."

MR. COLLINS: Well, and there is always the legal route.

MS. HESS: Well, that was what my next question was going to be: Whether there is anything short of the legal route, where citizens have to sue the NRC to see to it that the water doesn't get dumped into the river. Is there anything short of that legal procedure by which citizens can have a real effect, other than just public comment?

MR. COLLINS: Yes, there is. Because on certain various cleanup operations, it would require that those operations be included in the plant technical specifications, which would be an amendment to a license. At that point, the public could intervene and request a public hearing on that license amendment.

MS. HESS: And that is an adjudicatory hearing?

MR. COLLINS: Yes, it is, ma'am. Yes, it is.

MAYOR MORRIS: Thank you.

Yes, sir?

STATEMENT OF STEPHEN SYLVESTER

MR. SYLVESTER: Stephen Sylvester, from Lancaster. I would like to make a statement, first, and then ask a question.

MR. COLLINS: Could you speak into the microphone?

MR. SYLVESTER: I would like to make a statement, first, and then as a question.

I have read almost all of the statement, and I have listened here tonight, and I must say that you've gone into a good more detail in the past. This both puzzles me and concerns me.

I think what most people in this room really want to hear is: When is the cleanup going to be finished? And what are you going to do with the waste? When are you going to truck them out of south central Pennsylvania?

And despite the fact that you've answered every question here in a great detail of detail, and you've told us over and over: We know what we're doing. We have experience. It seems that tonight what I hear more and more is: The cleanup process is becoming, time-wise, more open-ended. All of a sudden you're telling us: Well, it may take longer now.

Met Ed said three years; now we think it's seven; we think it may even be longer.

If you want to settle this thing with the public, if you want to somehow win the public over, to cooperate with you and to listen to you, you'd better come up with these answers, fast. And if you tell me you don't know, you shouldn't be sitting up there. You should be sitting down here and somebody with the answers should be sitting up there.

(Applause.)

MR. SYLVESTER: That is my statement.

MR. COLLINS: When you say "tell you when the cleanup is going to be completed," the NRC, as long as I can remember, has said it was going to take five to seven years. The Environmental Impact Statement says "five to seven years."

MR. SYLVESTER: Tonight you're saying something different.

MR. COLLINS: No, I did not.

MR. SYLVESTER: You're saying there's not enough money, possibly, and it may take longer and the schedule may be pushed back.

MR. COLLINS: Well, certainly, because of recent cutbacks at Metropolitan Edison, you can't proceed at the same level of cleanup if you don't have funding --

MR. SYLVESTER: I'm not after -- I'm not after excuses.

MR. COLLINS: I'm not giving you any excuses --

MAYOR MORRIS: Sir, I think the gentleman has answered your question.

MR. COLLINS: I'm giving you a statement of fact.

MR. SYLVESTER: Okay.

Now my question is: I have read in the newspapers that Met Ed is asking for money, or is about to ask for money, or is looking around for money from the Federal Government to help with the cleanup. Part of their rationale is that the regulatory process didn't protect them from this accident.

Could you, in your position working for the NRC, comment on this? Did the NRC do a good job? Was there any malfeasance? Is there any sort of, in your mind, liability that the NRC has from this accident and thereby committing the public Treasury to clean this up?

MR. COLLINS: Well, I'm aware that the Metropolitan Edison has spoken with the Pennsylvania delegation in this area, and it has looked at the possibility of federal legislation to secure funds. At the current time, I am not aware of any action in Congress right now to propose legislation.

If you're saying: Is the NRC liable? I can't see how we are liable, and there are no funds that are available from the NRC for the cleanup. We operate under an appropri from Congress and carry forth the regulatory program on a yearly basis.

MR. SYLVESTER: I would like to ask one more question on financing.

I understand that Met Ed has brought a lawsuit against Babcock and Wilcox.

MR. COLLINS: That is correct.

MR. SYLVESTER: In terms of figuring out who is going to pay for what, has the possible settlement from that lawsuit been figured into any of the --

MR. COLLINS: I must be very honest with you. I don't know where that lawsuit stands. I know that they have sued B&W, but I don't have any idea where that lawsuit stands.

MR. SYLVESTER: Have you heard anything in terms of maybe that money could be tapped or used --

MR. COLLINS: No, I haven't heard anything to that order; nothing.

MR. SYLVESTER: Thank you.

(Applause.)

MAYOR MORRIS: Yes, sir?

STATEMENT OF KENNETH MAY

MR. MAY: I am Kenneth May. I live in Owings Mills, Maryland. One of the thing that was striking to me, as a lawyer, about this PEIS was that there were no cost figures, financial figures as to the cost of the various alternatives, which I thought would have been in the PEIS.

On September 18th in a meeting in York, you,

Mr. Collins, said that the only criteria is something along the line of "as low as reasonably achievable," and the costs of the various methods would not be a consideration.

Now on September 30th at a meeting in Annapolis, the same question was asked of Dr. Bernard Snyder, and he said that cost would be a "secondary consideration," which seems to be different.

I was wondering if the two of you have discussed which one of you is right?

MR. COLLINS: No, I don't think there is a difference of opinion at all. I think that what I said in York at the meeting was that the costs were not included in the document because all of the costs were not available at the time, and that the final document as required by NEPA would contain the costs.

I also added that cost is not an overriding consideration in the decision-making process. I have said that repeatedly. And that is not in conflict with what Dr. Snyder said. He said, it's a secondary consideration. And I think those are two consistent statements.

MR. MAY: I guess one of misinterpreted somewhere along the line.

MR. COLLINS: Well, I know I have always said that the reason those costs were not in there is because they were not all available at the time the document was published. They

will be in the final document.

STATEMENT OF MARCIA WEISS

MS. WEISS: My name is Marcia Weiss. My address is 401 Eden Road, Lancaster.

First of all, I would like to know if I will receive a copy of the transcript, because I have given you my address? Am I giving you my address so I can get a copy of the transcript?

MR. COLLINS: No. You are giving your address to identify yourself. If you want a copy of the transcript, they will be available through my Middletown Office.

MAYOR MORRIS: You will have to make a specific request. It will be available in about a week.

MS. WEISS: First of all, I would like to say that I am an educator and not a scientist, so I really cannot get into the technical aspects of your survey. But I am deeply involved in this issue because, at the time of the accident I was pregnant, and I was to be in the area of the -- the area that was to be under Phase I. It has deeply affected my life, but I have decided to not be upset by it and to do things about it.

One of the concerns that I have -- or a comment, is that, if you would, to talk to the local water companies and find out what their sales were before the accident, and what their sales were after the accident. I think you would be quite surprised.

I know many people through employment and through my church activities, and I think that most people switched over, or a lot of people have switched over to the Diamond Springs Water. Now if a survey went out to those people, I think that an underlying reason would be fear of the drinking water. We can't get away from it. Our children brush their teeth in it, and they take their baths, and we wash our clothes in it. I know you have good scientific reasons as to why we are safe, but there are a lot of people that are still afraid; and there are people that just cannot forget it.

We don't have a packed house tonight, but there are people here who care and people who read the papers. And there are many more people that care about it than I think you people realize, and that is one way of showing it.

(Applause.)

Now one of my questions is: In your statements concerning the low-level dose rate, the rems that a person can receive per year, that safe average, are people included in the statistic?

MR. COLLINS: Yes, they are, ma'am.

MS. WEISS: Are the infants also included?

MR. COLLINS: Yes, they are, ma'am.

MS. WEISS: What about the fetuses?

MR. COLLINS: Yes, they are, ma'am.

MS. WEISS: And that's all taken into the average,

though?

MR. COLLINS: Well, I'm going to have to call on Dr. Congel to explain, because it's not -- when you say "average," to lump them all together?

MS. WEISS: I would like to say, when you say the dosage rates we get are safe, I want to know that my 15-month-old baby is as safe as my five-year-old, as I am.

MR. COLLINS: Dr. Congel?

DR. CONGEL: I can say unequivocally that the doses that we are talking about, like the 1.6 millirem risk factors definitely include all of the people that you have mentioned; yes, they have.

MS. WEISS: If it's an "average," you're talking about both ends. Children are at the low end of the average. They are more susceptible. My baby was ten times more susceptible that day of TMI than my five-year-old was, than I was. And you just can't listen to the statistics like that. It should be as safe for a child as it is for an adult, and I don't think they are. But I'm not a scientist, and I can't get into an argument about it.

Now I do have another comment --

MR. COLLINS: Excuse me. Sir, could you speak to that?

DR. CONGEL: The risk per unit millirem received is age-dependent.

MR. COLLINS: Frank, would you talk into the microphone?

DR. CONGEL: The risk permillirem received by any individual is age-dependent. What I thought you were getting at when we talked about the risk of 2.2 chances in 10 million, it includes all of the individuals that you were referring to. That is what I was talking about when I was up here the last time. But indeed, the risk for a child -- the millirem-dose to a child does result in a higher risk than it does for an adult. I'm sorry if I misinterpreted what you were asking before.

MS. WEISS: What is it, the higher risk?

DR. CONGEL: The risks run, I believe for the one-year age group is about four to five times what it is for an adult of total-body exposure per millirem received.

MS. WEISS: What about the fetus?

DR. CONGEL: The fetus -- it depends on the stage of the development, but the numbers that I have seen are something on the order ot 10 to 20 times.

VOICE: I heard it was in the thousands.

DR. CONGEL: Well, I've seen all sorts of numbers. This lady in front of me said she saw "a thousand times."

VOICE: (Inaudible.)

DR. CONGEL: I'm sure that they were.

MS. WEISS: And I am very concerned about the children.

Many of the people in this area are conservative. We have a lot of older people that are saying: Well, in 20 years I'll be 70 and it doesn't matter. But there are a lot of parents that are concerned, and the people in my age group think about that for their children, and it is an underlying concern constantly.

Now since there is no hard data on the results of low-level dosages, which you've said tonight -- and I believe Frank had said this earlier -- I resent the fact that our children are being used as guinea pigs to provide these results in the future, and I feel that is what is happening.

(Applause.)

STATEMENT OF JOYCE NETKE

MS. NETKE: My name is Joyce Netke. I used to live in Lancaster, but I moved away from this area since the accident. Fortunately I am in town tonight so I could come to this meeting and hear what you have to say.

MR. COLLINS: Ma'am, could you tell us where you're from?

MS. NETKE: I live in Boston now. Unfortunately, though, since I've been out of town I haven't been able to read the PEIS, but I did get to read your slides and to hear you. I just want to make a couple of brief comments, and then ask a couple of questions.

The first comment is that one experiences a

considerable amount of psychological stress just sitting here and listening to what you say, and reading your slides.

(Applause.)

MS. NETKE: I don't know if anybody from Met Ed is here, but I would just like to make a brief comment for the benefit of anyone from Met Ed that might be here. It is real quick, if you will tolerate it.

I saw the newspaper coverage of the "manned entry" a couple of weeks ago, of the people who tried to get that door open and couldn't get it open. I just wanted to tell Met Ed's PR people that the billing of the whole thing as a "manned entry" by a couple of astronauts, whatever, didn't reassure me that anything patriotic or heroic was going on. It sort of reassured me that a bunch of clowns were still up there in charge.

My first question is: If I would happen to be driving down Route 81 one day and get behind a truck with some of that waste in it, would I be able to tell? And if so, how?

MR. COLLINS: Yes, you would be able to tell. All trucks carrying radioactive materials must be placquered with a radiation symbol on it, on all three sides, the back and the two sides of the truck. You would be able to tell it.

MS. NETKE: Do some other vehicles, for security, drive before and behind?

MR. COLLINS: Not on all shipments leaving TMI, no.

MS. NETKE: Why?

MR. COLLINS: Because they're not required to be escorted. In various states along the way, there are shipments the state police do escort.

MS. NETKE: Do they escort them in Pennsylvania?

MR. COLLINS: In the beginning the shipments were escorted, but that practice was stopped.

MS. NETKE: Why?

MR. COLLINS: I think you would have to ask the Commonwealth of Pennsylvania that.

MS. NETKE: Does the NRC view that as safe?

MR. COLLINS: We don't require that they be escorted. We consider those --

MS. NETKE: Is that because you think it's safe not to escort them?

MR. COLLINS: That's correct, ma'am.

MS. NETKE: Why do you think it's safe not to escort them? Might there be an accident?

MR. COLLINS: I think, yes, and we have analyzed it and there is an environmental impact statement which has addressed the transportation hazards, and we believe that the hazards that have been analyzed and the shipping containers that are being used at Met Ed, that there's a very low risk of radiation exposure as a result of an accident.

MS. NETKE: Can you clarify what you mean by a "very

low risk"?

MR. COLLINS: I would say that if we're shipping out one of our resin-liner casks, which is encased in what we refer to as a "Type B Overpack," which is a container that must be licensed by the NRC, and it must take a 30-foot drop test on its edge, and it is subjected to a high-intense fire, and must withstand those conditions. That's the type of -- If you did have an accident, that probably the vehicle that hit the tractor trailer would be severely damaged, and the container would still be intact.

MS. NETKE: But you said that some states do require escorts?

MR. COLLINS: Yes, in various states along the way there are states that do require it.

MS. NETKE: Do you think that shows, then, that there is some area of disagreement as to whether --

MR. COLLINS: No, I think that in those states it is just the --

MS. NETKE: You think they're just --

MR. COLLINS: -- the political environment would require an escort through the state. That's a decision that is made by the governor and his advisors.

MAYOR MORRIS: Ma'am, I think he has answered you from the NRC's standpoint. I don't know if the DER --

MS. NETKE: I was just wondering if --

MAYOR MORRIS: -- person would like to speak on behalf of the Commonwealth of Pennsylvania or not?

MR. GERUSKY: We do not feel it is necessary to escort the shipments at the present time.

MS. NETKE: Even given the political environment here?

MR. GERUSKY: Well --

MS. NETKE: I just have another question. It's a little bit on the lighter side.

Who came up with the word "milestone"? And what is that supposed to mean compared to (inaudible).

MR. COLLINS: Well, a "milestone" is a term that is used in all PERC diagrams. It refers to those occurrences, or those events that have to occur, and they're referred to as "milestones."

MS. NETKE: Well, they are "milestones," indeed, but maybe not the way you mean them.

I had another question --

MAYOR MORRIS: Ma'am, would you make it more on the more serious side, so that those people --

MS. NETKE: Yes, this one's one the more serious side.

MAYOR MORRIS: -- people here waiting to get up and ask maybe serious questions --

MS. NETKE: Well, we've listened to a lot, and I'll only take a minute.

If the Court does not see fit to order the PUC to require the rate-payers to pay for cleanup over and above what insurance would pay for, what do you see as a viable alternative for financing?

MR. COLLINS: That's a question that I can't address. That's a question that Metropolitan Edison is going to have to address. And as I say, the Court has stayed that right now and Metropolitan Edison and the PUC are negotiating.

MS. NETKE: I know that, but surely the NRC has also thought about it, and I just wondered if you had any thoughts on it.

MR. COLLINS: We have met on this subject, and at the present time we are waiting to see what action is going to occur as a result of these negotiations. I cannot tell you what the bottom line is; I don't know that bottom line.

MS. NETKE: Thanks.

MR. GERUSKY: Mr. Mayor, can I comment on the transportation?

MAYOR MORRIS: Yes.

MR. GERUSKY: On all shipments from Three Mile Island, the state is notified prior to the shipment and is notified when the shipment takes place. We in turn notify the State Police and the Pennsylvania Emergency Management Agency, the Pennsylvania Hazardous Substances Transportation Board.

All State Police barracks along the route, and all

counties along the route are notified when the shipments -- what the shipment is, and when it is expected to leave Middletown, and when it is expected to cross the Ohio line. So there are notifications, and people are aware the shipments are taking place. We don't feel there's a need, on top of all that, to have somebody escort the shipment.

MR. COLLINS: I might also add, taking that further, every state along the 2300-mile route is notified when the shipment is leaving TMI, and when it is due to arrive in Richland, Washington -- every state along the route.

MAYOR MORRIS: Yes, sir. You're next.

STATEMENT OF STAN KOHLER

MR. KOHLER: My name is Stan Kohler. I am from Cardiff, Maryland.

I am here tonight because I am going to be impacted by this, just as I was impacted by the 20 million curies that were initially released by the original accident. I come to Lancaster frequently, and I used to drink the water here. I drink the water in Havre de Grace, and I used to enjoy eating the shell and fin fish from the Chesapeake Bay.

So I have some questions pertinent to Section 6. These relate to some of the biological concentrations that you're indicating in the report.

There are a couple of things I would like to make clear, first. Number one is that, when you talk about 1.6 --

1.7 cancers in 10 million due to exposure to the 1.2 to 1.3 millirems, these are whole-body exposures that these are based on; correct?

MR. COLLINS: Yes, that's correct.

MR. KOHLER: So this is assuming that the 1.2 to 1.3 millirems are exposed over the whole body. Now two of the more potent radioisotopes that we're talking about, or radionuclides, are cesium-137 and strontium-90. Both of these are fairly strong bioaccumulators, and not just bioaccumulators but also ecosystem concentrators -- which means that they concentrate as they move up the food chain.

You said a number of different things in your report. You said that if there was an accident, that somebody who consumes a grand total of, I believe it was, 2 liters of water a day and 21 kilograms of fish could get a total of 31 millirems and 21 millirems respectively. Correct?

MR. COLLINS: That's correct.

MR. KOHLER: And if you total that up, if somebody happens to be somebody who likes to drink a lot of water and they drink 2 liters of water a day and they also eat a lot of fish, that means a total of 58 millirems.

Does this include the overall effects of accumulation and concentration in the body? In other words, does that include the fact that it is going to stay there for awhile? Or does it mean a one-time-only deal? That it's going to --

MR. COLLINS: Frank, why don't you answer that question, since you're the one who got involved in the evaluation.

DR. CONGEL: All the doses that were calculated include the accumulation in the food chain in the final receptor next to man -- namely, in the case you brought up of fish and shell fish -- and all of the internal doses that are calculated and presented in the document for human beings includes what is called the "50-year dose limit effect." So all of the one-time intake includes the dose that you receive from that one-time intake out to a period as much as 50 years.

Now depending on the radionuclide involved, 50 years may not be meaningful if it has a very short half-life, for example, biological or radiological.

MR. KOHLER: Okay, but in the case of cesium-137 we're talking about a half-life of 30 years, and a biological hazard life of 600 years --

DR. CONGEL: And it includes a 50-year --

MR. KOHLER: And if you're talking about strontium-90 -- It's what?

DR. CONGEL: And then it includes a 50-year dose commitment associated with the one-time intake.

MR. KOHLER: Okay, and of course we're talking about approximately a 540-year biological hazard life for strontium-90 in the environment. And we're also talking about -- So if you

just take your linear relationship that you were talking about earlier, that automatically boosts the potential cancer rate to 40 per 10 million, I guess it was, as opposed to 1.2. Is that correct? Assuming, of course, that a person has ingested 5.2 liters a day and 21 kilograms a year of fish?

DR. CONGEL: Let me make sure I follow your numbers before I give any answers.

MR. KOHLER: Okay.

DR. CONGEL: We have, as the beginning relationship, that the 1.6 millirem dose is equivalent to a 2.2 changes in 10 million of cancer induction.

MR. KOHLER: All right.

DR. CONGEL: So you're saying you're extrapolating that to a dose of, what, 50 millirem?

MR. KOHLER: Well, yes, if you take it out to 58 millirem.

DR. CONGEL: 58 millirem? Okay. Then you've just extrapolated the 2.2 out by the same factor?

MR. KOHLER: Yes.

DR. CONGEL: Yes.

MR. KOHLER: Okay, so it's probably up around 40 or 50, or something like that. And of course if you happen to be a child -- a very young child -- your chances are much, much greater. And if we take it a factor of 10, then it's up to 400, assuming that child drinks water and eats fish in the

approximate amounts that you've listed here.

DR. CONGEL: No. No, wait. Because the dose factor and the risk factor are based on averages. The child doesn't stay a child for 50 years. So that when you talk about the risk associated with the one-time ingestion, then you have to talk about the risk over the remaining lifetime of the child.

MR. KOHLER: Okay, but one point we definitely agree on is that a child is much more seriously impacted by this --

DR. CONGEL: I told you that the recollection of -- I know the number for comparing the adult risk to a child risk, and if you're talking "child" in the one- to five-year group, you're talking about a difference of five.

MR. KOHLER: Okay. So my last point to make here is that all of these projections are based on whole-body counts. It's a well-known fact that cesium and strontium do not disperse throughout the whole body; they concentrate in specific areas of the body. Is that correct?

DR. CONGEL: That's correct. Primarily in the liver.

MR. KOHLER: So what that means -- Pardon me?

DR. CONGEL: Primarily in the liver.

MR. KOHLER: For cesium?

DR. CONGEL: Yes.

MR. KOHLER: And also the gonads, and a lot of the soft parts -- the fatty tissues, adipose tissues, et cetera.

DR. CONGEL: But the critical organ for cesium is the liver, cesium-137.

MR. KOHLER: But other areas, also, because there are other areas --

DR. CONGEL: That's why we give the whole-body dose equivalent to you can include --

MR. KOHLER: Okay, but the fact is that as far as the total kilogram weight in the body, when you're talking about that, it's probably narrowed down -- it would be much closer to about 5 percent, or maybe 2 percent of the whole-body weight? Correct? Which means that that's --

DR. CONGEL: Let's go back. You're going --

MR. KOHLER: I'm not going to worry about exact factors --

DR. CONGEL: Let's go back a second. I'm not following you.

MR. KOHLER: I'm talking about the liver. Let's say the total weight of the liver per body, and the total weight of any adipose tissue that these things concentrate in.

My point is that it's concentrating at a much smaller section of tissue, so therefore --

DR. CONGEL: Correct. And that's reflected --

MR. KOHLER: -- that smaller section of tissue will be exposed to a much higher amount of radioactivity than the whole body.

DR. CONGEL: No.

MR. KOHLER: It won't be?

DR. CONGEL: No. The dose already reflects that count. That's what I thought you were going to get at. That dose already reflects the kind of concentration you're talking about. The rem is already given in terms of energy deposition per gram of tissue. And if the particular radionuclide you're talking about concentrates in the liver, then it's the energy dissipated in the liver.

MR. KOHLER: Right.

DR. CONGEL: All right, and that's already reflected in the dose. I'm going to come back to that point.

MR. KOHLER: A whole-body count means "whole body," though, correct?

DR. CONGEL: A whole-body dose, you can either talk one of two concepts. You either talk about the organ-dose -- and I don't think we should get into a dialogue here -- we either talk an organ-dose, or the whole-body dose equivalent; they're both normalized to the same mean in terms of risk.

What I think you're trying to do is trying to show that the doses that were calculated, you can start extrapolating upwards by the kinds of numbers you're talking about. I think for the purposes of our discussion here -- and I would point out and be happy to discuss with you, or give you the documents on how we did the calculation -- that they already include both

the dose factors. There is no way that you're going to get any other increases in the manner in which I think you're questions or comments are leading. They already include the fact of the 50-year dose commitment. If you want to extrapolate it for a child as opposed to an adult, you can do that; but you'll find, if you go 50 years, it stays at 50 years, the risk is age-proportionate. A child is a child for 10 years. You've got 40 years left as an adult. The risk is not going to change, on the average, that much.

MR. KOHLER: Okay. My point here is that when you're talking about things that concentrate in certain tissues, those tissues are much more potentially impacted by -- not "potentially impacted"; are much more impacted by those isotopes that concentrate there.

DR. CONGEL: You're absolutely correct, and it is included in the dose --

MR. KOHLER: So therefore, you're greatest chance of getting cancer in those areas are, if it concentrates in the liver, in the liver. And if it concentrates in the bone, in the bone and the bone marrow.

DR. CONGEL: Correct.

MR. KOHLER: Okay. And --

DR. CONGEL: And that is reflected in the risks I was talking about.

MR. KOHLER: I would have to go over that, because it

just seems to me that, from the way I read it here, it doesn't necessarily state that.

Initially, also, in here it does not -- I did not see anywhere in here where it does talk about ecosystem accumulation. I did not also see any estimate in here as to what happens to people who consume fin fish or shell fish from the Chesapeake Bay over a long period of time when you have these things accumulating in the system. I didn't see any direct reference to that in here. The only thing I saw was in the conclusion where it talked about a potential accident and somebody consuming fish.

DR. CONGEL: Okay. There are two points that I want to make:

Biological accumulation is discussed in the immediate site environments. "Biological accumulation" reflects reaching equilibrium. That is, the fish grows to its whole life cycle in that concentration is what is reflected in the doses that would calculate for those circumstances. It is just like the 1.6 millirem dose that John referred to at the beginning of his talk, that was the maximum individual dose. That was for the point offsite that we anticipate the poorest dispersion, and therefore the highest dose. All other doses that could possibly be received by anybody else would be less than that.

As we start talking about doses associated with consuming fish or shell fish in the Chesapeake Bay Region, they

are going to be much smaller fractions of the doses that we've presented near the site. But bioaccumulation was addressed.

MR. KOHLER: Okay. I saw bioaccumulation for organism, but I didn't see it addressed as an ecosystem; but we can talk about that another time.

DR. CONGEL: Well, and maybe we should clarify it in the final. That is a good point. But the bioaccumulation does reflect an equilibrium through the food cycle.

MAYOR MORRIS: Could we get you two guys together after this meeting?

VOICE: Let him talk. Let him talk.

MR. KOHLER: My last point is just a comment. That is, just that the government standards that are relied upon here are being contested in many areas. Many people do not agree with them.

MAYOR MORRIS: Well, this gentleman said, "let him talk." I have no objection to that. There are about 40 minutes left. You can write -- I think you have had a good dialogue here. You can write additional comments in, if you want to. There will be that possibility.

I am just giving as many people a chance to comment as possible. That's all. I am not deliberately attempting to cut you off. I think you have had a pretty good chance to ask your questions.

MR. KOHLER: Okay. My last comment, though, is that

the standards are being contested. In the interest of everyone concerned, I would vote that the water not be released. And it seems to me that solidification on-site has a very, very good potential. I think that it can be done in such a way that workers are not exposed, and I think that having it there on-site -- and I'm talking about fairly low concentrations, as you indicate they are here -- in cement are going to stay there for a long time. And if they build a wall around it, so much the better

Thank you.

(Applause.)

MAYOR MORRIS: Yes, sir.

STATEMENT OF JIM BRESFLOWER

MR. BRESFLOWER: My name is Jim Bresflower, and I live in the Willows Creek Pike in Lancaster. I work in Harrisburg, and I take a train right past TMI ten times a week, and I'm scared.

You, Mr. Collins, are a part of the same government that marches soldiers out to watch nuclear tests, and then 30 years later denies liability when they contact cancer. Anything you don't know about TMI, such as the disposal of high-activity waste, you now cavalierly dismiss as "unimportant."

Politically, I believe your only possible alternative at this point is to assure us that everything concerning TMI is safe. I don't believe a word you say.

(Applause.)

MR. BRESFLOWER: Until you involve the Union of Concerned Scientists, and other independent, nongovernmental and nonindustry groups in the decision-making process, that will continue to be my attitude.

(Applause.)

MR. BRESFLOWER: My question to you is: Do you have any plans to do so?

MR. COLLINS: Do I have any plans to do what?

MR. BRESFLOWER: To involve the Union of Concerned Scientists and other independent, nongovernmental and nonindustry groups in the decision-making process?

MR. COLLINS: As part of the decision-making process, this document is being reviewed by a lot of independent bodies other than federal agencies, and certainly I would expect to have comments received from the Union of Concerned Scientists.

MR. BRESFLOWER: I have submitted comments on different regulations and had them universally ignored. Why should this be any different?

MR. COLLINS: Well, I can't asnwer your question without a specific reference to where it was being ignored. I can't comment on that. You say that you have commented on standards and they were ignored?

MR. BRESFLOWER: I'm not saying specifically regarding this issue. I'm talking about governmental regulations that

I've commented on, and they've been ignored in final regulations.

But my question to you is: Why should we believe this is any different?

MR. COLLINS: I guess with that kind of a track record, I guess there isn't any reason why you should believe me. All I can say is that it is the interest of the NRC to solicit your comments. If your comments had been ignored in the past, that doesn't necessarily mean that it follows that they're going to be ignored in this review.

And without your specific reference to where your comments were being ignored so that I may follow up on it, I can't really address that.

MR. BRESFLOWER: But the extent that you are going to involve other independent groups is solely through the comment process --

MR. COLLINS: That is correct.

MR. BRESFLOWER: -- and they're not going to have input in the actual decision.

MR. COLLINS: That's correct. Under the comment period, numerous groups are reviewing the document, and we would certainly expect to receive comments from them, including such groups as the Union of Concerned Scientists.

MR. BRESFLOWER: But you are making the ultimate decision; they will not be involved in that?

MR. COLLINS: The ultimate decision will be made by

the Nuclear Regulatory Commission.

MAYOR MORRIS: Yes, ma'am?

STATEMENT OF LUCILLE WRIGHT

MS. WRIGHT: My name is Lucille Wright. I live in --

THE REPORTER: What was your name?

MR. COLLINS: Would you speak into the microphone, please?

MS. WRIGHT: Lucille Wright, and I live in Landisville.

I am concerned about several things, and I think that I may be suggesting something that might help the concerns of different groups who have expressed themselves.

First of all I would like to say that I really do feel as though the Nuclear Regulatory Commission has a pretty big job. So I think it is healthy that the opinions and views of people who have expertise -- local people -- should be expressed. But I also feel that -- this is the first time I have ever attended a meeting like this, and there are not many of us here from the area. I feel as though we need to have some kind of an expression. And I am wondering if there are any plans or any consideration of a local referendum that would include the people in the counties here that are directly involved in this issue.

I feel as though we should have something to say, a chance to say how we feel about the release of water into the

Susquehanna. I feel as though we ought to be able to say something about how we feel about the disposal of the solid waste. And I also feel as though the general public ought to have some input into the reopening of Three Mile Island.

(Applause.)

MR. COLLINS: Let me address -- and I'll let Mayor Morris address the questions concerning a referendum -- but let me address the question of public participation when it comes to the question of whether or not TMI would reopen or not.

The public can participate. That is, TMI 1, as you know, is in the hearing process. The hearings will begin on October the 15th, and the public can participate in those public hearings.

MS. WRIGHT: I realize that, but there too many people who, you know, just don't have the opportunity, or don't make the opportunity to do it in that forum. And I feel as though if there were just some way of generally involving the public in some type of vote, it would be helpful.

MAYOR MORRIS: Ma'am, quite frankly, any referendum we would have locally would have absolutely no impact that I would know of on what the NRC can or cannot do. They are the ones that make the decisions on this, and I think -- To me, I am glad to see this many people show up. I would have expected this hall to be full, quite frankly, and I am somewhat surprised there haven't been more people that came out to

express their concerns, because I've heard a lot of it. And I think this is our opportunity -- at least this time -- to come out and give your concerns and be heard, and write your concerns -- the people who didn't come to the meeting -- to write their concerns about the PEIS and to go on record, and not say that our comments are going to be ignored so I won't show up. Because that's going to do nobody any good.

So, you know, I think your referendum question -- I don't think there's anything we can do locally, legally, to make that effective. I think the thing we can do is, if we have joint concerns and problems, that we voice those concerns and we be heard. And people are being heard tonight. And along that vein, I would ask you to state the concerns that you have, other than the ones you've already mentioned.

MS. WRIGHT: Well, I'm extremely concerned about the solid waste, because -- Well, I don't know the answers to these things, but what is the half-life of the higher activity waste that is apparently on the site?

MR. COLLINS: Well, the higher activity waste is composed principally of cesium and strontium. Basically that is the -- they are the major nuclides remaining to be cleaned up -- cesium-134, cesium-137, strontium-89, and strontium-90. Those are the principal nuclides in the waters that have to be cleaned up, and in the water that was cleaned up already.

MS. WRIGHT: What is the half-life?

MR. COLLINS: The half-life for cesium-137 is 30 years; strontium-89, or strontium-90 is 23 years.

MS. WRIGHT: Aren't there materials -- aren't there things there that have half-lives much longer than that?

MR. COLLINS: The only other nuclides that are in there in the fuel itself -- now not in the waters -- are the actonides or the transuranics which are the plutoniums and the uraniums, but that's in the fuel. That's sitting in the vessel. That's not outside the vessel.

MS. WRIGHT: Would --

MR. COLLINS: And they do have, yes, much longer half-lives to them.

MS. WRIGHT: Woudl the NRC consider the result of a referendum? I mean, I know we can't say that this is the way it is going to be, but would there be any value to you in having a definite vote from the people of the area?

MR. COLLINS: Are you speaking to the Mayor, or to me?

MS. WRIGHT: I'm speaking to you, yes.

MR. COLLINS: Well, I think that certainly if the City of Lancaster had a referendum, the results of that referendum would certainly be considered by the NRC Commissioners. Now what final impact it would have, I can't really address; but I certainly would think that if the City of Lancaster passed a referendum, that would certainly greatly influence the decision

that the Commission would make.

MS. WRIGHT: Well --

MR. COLLINS: It would be just like the Governor of the State saying something. Certainly the Commission would consider his comments and try to reconcile, if there was a difference. We don't ignore the Governor, and I doubt very seriously that our Commissioners would completely ignore the people in the City of Lancaster if a referendum were to be had.

MS. WRIGHT: Well, I'm thinking of a much larger area as far as a referendum, because I feel as though, you know, York, Lancaster --

MR. COLLINS: Sure.

MS. WRIGHT: -- Cumberland, some of these counties that are involved. And I just feel as though the state legislators should be able to handle something like this, perhaps in the limited area -- they put out mailing lists for everything imaginable. And I feel as though we should be able to -- the average householder should be able to have a direct input.

(Applause.)

MAYOR MORRIS: Yes, sir?

STATEMENT OF RICHARD DRENNE

MR. DRENNEN: My name is Richard Drennen, and I live at 41 Springhouse Road in Lancaster.

My first question is: Who is this fellow taking my picture, and everybody's picture here?

MR. COLLINS: He's not mine, so I can't tell you.

MR. DRENNEN: Well, I would like to know who he is, and why he is taking our picture.

MR. SACHS: My name is Ed Sachs, from the Lancaster New Era.

VOICE: What?

MAYOR MORRIS: His name is Ed Sachs, and he's from the newspaper.

VOICES: What newspaper?

MAYOR MORRIS: The Lancaster New Era.

MR. DRENNEN: Okay, I have just a short comment. It was interesting, the fellow that was before me, what he had said about the atomic bomb and what happened earlier years ago.

I was a nuclear weapons assemblist in the Army, MOS 436.1. I was stationed at Sandia Base in Albuquerque. I know what radiation does to people. I've seen films that have never been shown to the public. I know how people turn very ugly because of it. I have seen it. These films are top secret. They will never be shown to anybody.

What I am worried about, more than this low-level radiation and so forth, God has a way of doing things with the earth. You can have earthquakes, typhoons, floods bigger than you have ever seen or I have ever seen. What happens to my home? What happens to all our homes when this place is under

water, when the rock splits because of earth problems and this radiation goes down this river? Can you guarantee me that in my lifetime I can come back to my home and drink my water because you have permitted something like that to be this close to this many people in a waterflow area?

MR. COLLINS: Well, certainly I cannot give you any guarantee. I think that would be foolish of me to even say that I could guarantee you anything. But I do believe that the measures that we have put in place to contain radioactive material, and the design of the plants are such that I do believe the safety -- the health and the safety of the public can be and are being protected.

More than that, I think that the NRC has never said to you, or the public, or anybody else that we would never have accidents. Accidents will occur.

MR. DRENNEN: Well, why did you even permit the place to be put there if there's a chance that the entire population would never survive again in this area if the accident was that bad? Because I have seen accidents that the Atomic Energy Commission could not control. Human beings could not control those accidents.

MR. COLLINS: Oh, no, no, no. I think you're talking about two entirely different types of accidents. You're talking about the deliberate bomb tests, the above-ground bomb tests, and that certainly should not be compared to the operation of a

nuclear power plant. No way.

MR. DRENNEN: It's still radioactive material --

MR. COLLINS: It's radioactive material, but --

MR. DRENNEN: -- that will affect our bodies. Is that correct?

MR. COLLINS: Certainly, if you want to relate it to the atomic bomb tests, but you're talking an atomic bomb test. Here you've got a controlled nuclear reaction inside a vessel --

(Boos and jeers.)

MR. COLLINS: -- and I think it's a much different situation than trying to correlate it to the above-ground, or even the underground tests.

MR. DRENNEN: Like the fellow before me, I do not believe you.

MR. COLLINS: Fine.

(Applause.)

MAYOR MORRIS: Yes, ma'am.

STATEMENT OF SYLVIA BUYAN

MS. BUYAN: My name is Sylvia Buyan, and I live in Marietta, Pennsylvania.

From the way I understand your Environmental Impact Statement, these environmental impacts would occur over a period of what you now estimate to be five to seven years. However, you mentioned tonight that this may have to be extended out.

MR. COLLINS: Yes.

MS. BUYAN: Now my question is, because you have no control over how quickly this will be done because it's a question of money, time, and all this other kind of thing, that there is a possibility that this could go on for 10 or 15 years.

MR. COLLINS: I hope not. I really don't think --

MS. BUYAN: I hope not, either. I live 12 miles away. However, if this were to drag on for whatever reason, how would this change the Environmental Impact Statement? Would you then have to do another survey? Would it change these statistics? Because I understand the plant is, I don't know, decomposing, or it has a life --

MR. COLLINS: No, it has --

MS. BUYAN: -- what --

MR. COLLINS: There is a possibility for deterioration of equipment. I think that's what you were trying to say?

MS. BUYAN: Right. How would this change your environmental impact?

MR. COLLINS: I don't think that at the present time, until we know for sure what the outcome is going to be of the recent actions, that we can really predict how much longer it's going to project the cleanup operations. But even if it did project it -- or even if it did slide it out a couple of years, I doubt very seriously that it would have any serious impact, environmental impact, associated with that. I don't believe that

the dose that we've calculated would change very much. The same cleanup operations would have to be performed, but over a different period of time. So that instead of receiving 1.6 millirems on the 5 to 7 years; it may be received over 7 to 9 years. And certainly I would hope it would not be extended out 10 or 15 years as you've indicated.

I think it is necessary for the plant to be cleaned up, and cleaned up as safely and as quickly as possible. Because as long as the plant sits there without being cleaned up, there is always a potential -- as we've indicated -- for human or mechanical failure. And it is essential that the plant be maintained, and the maintenance must go on to maintain it in a safe condition.

But surely if the plant were all cleaned up and the piping removed, and the fluid and the liquid was all cleaned up, and the fuel removed, you have removed that potential accident.

MS. BUYAN: That's what I would like for you to make known. I, for myself personally, would like to see this plant cleaned up as fast as possible in the most safe manner, because I feel very nervous with it sitting there. I understand you have a very difficult position to be in, and you have very difficult decisions to make, and I would just like to say that someone has to make these decisions -- and I'm glad it's not me -- but I do appreciate the time and care you've put into that. I just hope that there are no horrible things coming up

the road for any of us.

Thank you very much.

MR. COLLINS: And certainly it is the major objective of the NRC to clean it up as quickly and as safely as possible.

MAYOR MORRIS: Yes, sir?

STATEMENT OF BYRON CORE

MR. CORE: My name is Byron Core from Millersville. This comment and question is directed to Frank Congel.

A few moments ago you referred to calculated risks on the base of linear interpolation. I read in the EIS, Section 10.1, "The processed water would be diluted and then discharged to the river at controlled rates. Such concentration of radionuclides in the river would be well below the threshold level for deleterious effects in aquatic species of humans."

Now this suggests to me that there is some sort of threshold level that is also being considered. Would you comment on this, please? Also, what is that threshold level, if there is one?

DR. CONGEL: I'm familiar with what you've quoted, and whether it came across as it should or not, the doses that would result to any species other than man, that goes to the rest of the ecosystem, would not be affected in a deleterious way. The basis for making that statement is the fact that there are a number of studies -- quite a few studies that have

been carried out exposing populations in the natural environment to higher levels of radioactivity, and they've had to go well above the kinds of dose rates that we're talking about before any effects were observed. So in that regard, we could say with confidence that the dose rates that would result in the environment to the other species -- species other than man -- we would not expect to see anything. We just have no evidence that anything at all would happen at those levels.

MR. CORE: What about humans?

DR. CONGEL: Like I said during the number of my times up here, the dose rates that we're talking about we can only extrapolate in some, what we consider conservative manner as to what the effects would be. We have not seen any evidence of any effects.

I have quoted the BEIR Report of 1980 saying that doses on the order of 100 millirem a year are not expected to show any kinds of effects. Nevertheless, even at the dose rates of 1/100ths of that, on the order of 1 millirem, we attempt to quantify what the risk is.

MR. CORE: So there isn't any "threshold level"?

DR. CONGEL: Absolutely not. I thought I said that at the very beginning. It was a linear, low threshold hypothesis.

MR. CORE: But this refers to a "threshold level."

DR. CONGEL: Well, maybe we should change that.

MR. CORE: One other thing. Would it be possible to

get a copy of some of your calculations on this 1.6 millirem as a maximum dosage that you're talking about?

DR. CONGEL: I'll be happy to give them to you.

MAYOR MORRIS: Thank you, sir.

Yes, sir?

STATEMENT OF CARL HUIER

MR. HUIER: I'm Carl Huier. I'm from Bel Air, Maryland.

I, too, am opposed to the dumping of the water into the Susquehanna River, because I live right on the Bay. I'm a little closer to the Bay than I am to Bel Air. I used to like crabs. I don't eat crabs and shellfish from the Bay anymore.

I do have some questions. One of them refers back to Mr. Congel, and he opened it up by what he said there. The amount of radiation that's taken into the body as a child, the infant at one year, no matter what level we're talking about, is considerably growth-related to the child. Not that the child gets older from the time of one year to fifty years, that way. But if the child is there in an area where there is radiation, year two, how much radiation does that child recieve as whole-body radiation, and now much does it retain, year three, year four, year five?

The cumulative effects on that infant, or unborn fetus, or fetus, will continue to grow as a cancer if the cancer is there.

Now getting back to this BEIR Report, as expected over a year, what period of time are we talking about in the experiments or the data that was extrapolated on giving doses of radiation to mice at 100 millirems, or to hampsters or guinea pigs are we considering that you extrapolate to a year? Is it a day? Was it five hours? Did you observe the animal through its lifetime, as we're doing with human beings?

DR. CONGEL: No. Most of the data that -- in fact, I would say all of the data that were used to come up with the risk estimate that we're using in this analysis came from human beings. They came from the survivors of the Hiroshima and Nagasaki bombings; they came from a number of other individuals that were exposed, either as a result of occupational exposure -- for example, the uranium mining claims, as an example -- or others that were exposed to radiation as a result of some medical procedures that were thought at the time to be an acceptable procedure, and they've been followed.

And of course with the Hiroshima and Nagasaki people we're talking a whole spectrum of ranges, from the young infants, and in fact there were fetuses that were exposed, all the way up to older people. And these data continue to be gathered and they are used to go back into the statistical base to determine what the risk of exposure is.

MR. HUIER: Yes, but we do have evidence in Nagasaki they just had two weeks ago, the reunion of all those people

who were born, and who are the descendants, and who do have genetic defects that they're passing on hereditarily. not just by being exposed, but by their parents or grandparents being exposed to the radiation effects of Nagasaki and Hiroshima.

DR. CONGEL: Well, I don't know what the two-weeks-ago reunion was that you're referring to --

MR. HUIER: It was in Japan.

DR. CONGEL: Well, I would assume it was there. In that case, the National Academy of Science, and the BEIR Report of 1980 -- and I keep coming back to that because I've heard some remarks from the audience that "I heard a scientist say that it was this many tens of thousands of times in effect" than someone else.

Well, the National Academy of Sciences is made up of a group of people who are chosen because of their expertise in the area. They spent several years putting together this report. And when it came to genetic effects, they were not able to discern any evidence of genetic effects associated with the data base that they had to go from at the Hiroshima and Nagasaki exposures.

Nevertheless, the data that was finally used to show, or indicate -- because they felt that there probably is evidence of genetic effects, was the result of Dr. Ellis Stewart's tests with leukemia induction as a function of in utero exposure of mothers to X-rays. That was the only evidence that they had.

Now they feel -- They have qualified their data and said that they haven't got a very good handle on it, but they feel that, if nothing else, they are conservative. They are probably overestimating the real effect.

MR. HUIER: But we do know of effects in plants. Take the spider, for instance. Is a plant less or more susceptible than human beings or animals?

DR. CONGEL: No.

MR. HUIER: Let's go to something else, now. I think you've addressed -- You didn't answer quite what I was thinking of, the cumulative effect in the infant as the child grows -- But if you were standing there and received the same doses that the child does -- and you said before it could be 10 to 20 times greater in a one-year-old infant than it is in you -- the second year you're standing there, is it still to 20 times? Or is it 15?

DR. CONGEL: Okay, just a second.

MR. HUIER: Because as the first --

DR. CONGEL: The risk is, the lifetime risk associated with one year of exposure.

MR. HUIER: Just one year?

DR. CONGEL: One year.

MR. HUIER: We're talking about seven-plus years of exposure at TMI.

DR. CONGEL: If you're going to do that, then you have

to compound the risk. The maximum to the individual is the same individual each time, and then of course you have to account for the fact that that individual --

MR. HUIER: That's just what I'm saying. And we've already received X amount of dose of radiation this last year. We're going to be receiving it for the next seven years, whichever way the wind blows. We may receive it in the water, or the air, or the plants that we eat, but we've already been exposed in the food chain.

The next question is: Has the NRC, or its parent organization, because they license facilities and represent the public interest, taken continuing surveys for cancer, deformity, still-births, lower fertility surveys on the populace of mammals and vegetation in the environment directly surrounding nuclear facilities at any time, past, present, or ongoing?

Can anybody answer that?

DR. CONGEL: I can point out that there have been no studies that I'm aware of --

MR. HUIER: Well, then, for the record I would like to say that I think the NRC or a group should start these studies.

(Applause.)

DR. CONGEL: We have considered making such studies, but the amount of radiation that is received or delivered to the

public from an operating nuclear plant is not sufficient to warrant the cost associated with it. I will hear all sorts of -- The fact of the matter is, there are other bases, other data bases to be used to try to derive the cost-effect relationship that you're referring to.

MR. HUIER: Well, the other bases? I went to do some research in this. The Cancer Society can only provide what is available through radiation by the amounts of deaths they get in a hospital here or there. There are no surveys done to find out how many deaths over the populace in an area surrounding, or abnormalities in birth, whether it be human or any other animal life --

DR. CONGEL: Well, I would like to point out that there have been studies in regions where the dose rates are significantly higher because of natural background radiation in an attempt to relate those --

MR. HUIER: But they are not continuing studies. They are only --

DR. CONGEL: Oh, yes, they are. Yes, they are.

MR. HUIER: I have only known of two --

DR. CONGEL: Which ones?

MR. HUIER: Now the one that's been done up in -- is it Michigan, I believe? And that was a 15-month study. Now how can we relate that when the government says -- I can't remember right off-hand. I don't have it with me. But --

DR. CONGEL: No, I'm not talking about studies like that. I'm talking about studies that were done on a section of India with natural background radiation --

MR. HUIER: I'm talking about studies in our country.

MAYOR MORRIS: Gentlemen, we have 12 minutes to go. You can debate this for two more minutes, if you like; but I'm going to give this gentleman five minutes, and the lady five minutes, and that will conclude the questions.

DR. CONGEL: Then the only point I would like to make is that there has been an attempt to relate cause and effect relationships in the areas where the dose rates are considerably different from an average. And I'm talking about India; I'm talking about Colorado. There have been studies to look at 2- 3- 400-millirem-per-year exposures compared to 100 and have not been able to discern any.

There is also a study at the Mayo Clinic in Rochester that include medical-exposure histories in the counties surrounding the Mayo Clinic. They have not been able to discern. And we're talking hundreds of millirem, not one.

MR. HUIER: Well, you discern them over a period of time.

The other thing, why does cesium or strontium have to be released? Why can't it be superfiltered, or continually heavily filtered to get it out of the contaminated water?

MR. COLLINS: I don't think anybody indicated to you

that we were going to release strontium. The levels that we're cleaning up --

MR. HUIER: Well, we're talking about the threshold level and strontium, Mr. Collins. That's all I've heard here tonight.

MR. COLLINS: No, I don't think we ever quantified how much strontium would be released. Certainly we're going to clean up the water before it's released.

MR. HUIER: Then you're telling me that all the strontium and all the cesium, everything but tritium will be released?

MR. COLLINS: No, I'm not going to give you any assurance that all of the strontium will be removed. As far as the tritium, there is no process that will remove the tritium.

MR. HUIER: Okay, Mr. Mayor, if I may, one more thing.

MAYOR MORRIS: Well, sir --

MR. HUIER: Well, this is for you, as well as the rest of us out here --

MAYOR MORRIS: Well, make it brief so that these two people can make their comments.

MR. HUIER: Well, this is so everybody can speak. I would like to see a show of hands of all the people who are opposed to the dumping of the water into the Susquehanna River, of those here?

(A unanimous show of audience hands.)

MR. HUIER: Would you like to count those, Mr. Mayor?

MAYOR MORRIS: No, I would like to see who are for the dumping of the water.

(No response.)

MAYOR MORRIS: Okay.

MR. COLLINS: Ms. Court Reporter, would you note that all of the people showed their hands, please?

THE REPORTER: Yes, sir.

MR. HUIER: And note the estimate that Mr. Mayor gave prior to the question, the number of people here, at least that many? Thank you.

(Applause.)

STATEMENT OF BARNEY EPSTEIN

MR. EPSTEIN: My name is Barney Epstein from Millerville.

MAYOR MORRIS: Sir, I do want to repeat, you do have five minutes, and this lady (indicating) has five minutes. Okay?

MR. EPSTEIN: Oh, I'm going to be very brief.

By your own statement, you mentioned the fact that the scientific community has been searching for a burial ground for years for the high-level waste. I would like to know what constitutes "temporary"? Because in your statement, you mentioned the fact that the waste will be left on the Island

"temporarily."

Also in conjunection with that: How long after the time limit "temporary," does it become a waste ground, a permanent waste ground?

With Met Ed's track record, and invoking Murphy's Law, I would be fearful, very fearful indeed, that the waste would be there a longer time than temporary.

MR. COLLINS: Well, first of all, let me assure you that the NRC does not want to see TMI become a "long term burial ground." We don't want that.

How long is "long"? How long is "temporary"? I wish I had an answer. I wish I could say it's "one year," or "two years," but I have to be honest. I don't know. The answer is not available to us yet. We are investigating it. We are continuing our discussions with the Department of Energy as to where this higher activity waste can go and be disposed of safely.

With regards to the fuel, the fuel, once it's removed from the reactor, is put into stainless steel containers, canned, and it's stored in the spent-fuel pool. Actually, it could stay in that spent-fuel pool for 40, 50 years, because that's what those fuel pools were designed to do. That is a seismic structure, it's a steel-lined structure, it does have a well-monitored system to it. But I don't know how long.

Certainly I would think that a final repository, or

a final resting place for the fuel, whether it be an independent fuel storage facility, certainly would be available in less than 40 or 50 years. But right now, in all honesty, I can't give you that. I would hate to say it's going to be two or three years from now, and then you come back and say: You told me two or three years ago that it was two or three years.

MR. EPSTEIN: I was afraid you couldn't answer that one. That's what we're fearful about.

MR. COLLINS: No, I don't think it's "fearful" --

MR. EPSTEIN: It is to me, sir.

MR. COLLINS: Well, but I think the spent-fuel --

MR. EPSTEIN: Well, I'm not speaking of spent fuel, primarily. I understand what you've been doing with spent fuel. I'm talking about the waste materials. Not the fuel.

MR. COLLINS: Well, we're not talking all the waste down there now.

MR. EPSTEIN: Well, right now you are, aren't you? All but the water, perhaps?

MR. COLLINS: No, the waste -- the low specific activity waste, which is the compacted/noncompacted waste, that's being shipped off the Island right now. It's going to Richland, Washington.

What I am referring to is the higher activity waste contained on the resins. All of the resins are being stored there right now because the Commission has ordered Met Ed to

solidify all those resins before shipment, and they cannot go out of there until they are solidified. There is no process right now to solidify those resins. And until that methodology is put in place, they cannot be shipped.

MR. EPSTEIN: Thank you.

MAYOR MORRIS: Yes, ma'am.

STATEMENT OF KITTY LOVINGSHANK

MS. LOVINGSHANK: My name is Kitty Lovingshank, Lancaster City.

I am having a hard time with the lack of confidence that I have in the people that are sitting here tonight, and the people who have been represented to us throughout this whole accident. The track record for the Atomic Energy Commission before you, and now the Nuclear Regulatory Commission, for responsibility and honesty has been very poor.

And I think that when we as citizens see what is happening -- this is my statement, Mr. Mayor -- the uranium mining workers, for instance, in New Mexico and Utah and Colorado and Arizona, the government still, with all the information that they k.ot from those men, will not take responsibility for the cancer patients that are dying right now in hospitals.

Now my question is: Sitting here tonight, I am really confused about how much authority the National Regulatory Commission has over the decisions that are made by Metropolitan

Edison. If I understood you correctly, you very early this evening talked about an installation that is being put in at TMI that you people do not agree with; and that it's costing $35 million, but you told them to go ahead, that it's their problem.

And on top of the fact that the lack of Nuclear Regulatory inspections of these plants is what made this accident possible in the first place.

Now I would like some clarification about just what kind of a watchdog you really are.

MR. COLLINS: Well, with regards to what authority the Nuclear Regulatory Commission has, there is no operation that can be performed by Metropolitan Edison without those procedures being reviewed and approved by the NRC Staff on-site.

MS. LOVINGSHANK: Did I understand you to say that you did not approve of it?

MR. COLLINS: We did not approve of the SDS system. I have said that consistently.

MS. LOVINGSHANK: But they're installing it, aren't they?

MR. COLLINS: That's correct, and they are installing it -- and twice we have told them that they are installing that at their own risk, and they are willing to assume that risk.

MS. LOVINGSHANK: Do you see why your authority seems rather strange?

MR. COLLINS: No, I don't think that it's strange.

(Boos and jeers.)

MAYOR MORRIS: Ma'am, I think Mr. Collins, whether you agree with him or not, he has answered that question on at least two occasions.

MS. LOVINGSHANK: But, Mr. Mayor, can you see how very shakey we feel with a Commission that can't even enforce their own rules?

MR. COLLINS: No. There is no rule that would prohibit them from not installing it.

MS. LOVINGSHANK: But they are under your jurisdiction, are they not?

MR. COLLINS: Oh, no. We regulate them, and we regulate them to assure that they meet our regulations. There is no regulation that says that they cannot install a system. But there is a regulation that says that they cannot operate it.

MS. LOVINGSHANK: I am more confused --

MAYOR MORRIS: I think the gentleman has been very clear on that. If you don't want to accept that, so be it. But he has explained that I think very concisely.

Yes, ma'am?

STATEMENT OF BETTY TOMPKINS

MS. TOMPKINS: My name is Betty Tompkins, from Lancaster.

I want to make a brief statement. I did spend some

time in Washington this past year with some of the radiation victims, two of whom have died. One was from Nagasaki, and he left behind five genetically damaged children; and the other was Joe, whose last name escapes me, who worked in the enrichment plant in Paducah, Kentucky, and has his fingernails growing from all other places in his body other than his fingers as a result of working in radiation. I just wanted to make that statement in answer to what the gentleman here had said about no statistics.

My question then to you, Mr. Collins: On what basis did you make the statement that there will be no long-term psychological effects from Three Mile Island?

MR. COLLINS: I said that, based on the study that was done by our consultants and the staff who made that conclusion. I have our man here who was in charge of that, and I would be happy to have him address that.

MS. TOMPKINS: Are you saying the study that was made in Middletown, sir?

MR. COLLINS: No.

Don, why don't you address that question?

MR. CLEARY: In looking at psychological effects -- Don Cleary, from NRC.

In our examination of psychological effects, we found that one has to differentiate between the severe types of effects that have a clinical basis, and the types of effects

that are lower level anxieties and concerns.

Our findings were that the --

(Pause.)

Excuse me.

(Pause.)

MR. COLLINS: Well, didn't your study really conclude, though, that the greatest amount of stress could be relieved as a result of the krypton being -- as a result of a limited study by our consultants that showed no long-term effect as a result of the continuing operations?

MR. CLEARY: That's correct, in terms of severe effects we found that removing the stress is --

MR. COLLINS: Yes.

MR. CLEARY: -- would reduce the level of anxieties and stress. That's not to say "reduce concerns"; and that in the severe levels of stress which would have long-term impacts, in other words, that individuals would have great difficulty in adjusting to, recovering from, would not -- that the incidence would be extremely low in this.

MR. COLLINS: Did you have a follow-up question on that?

MS. TOMPKINS: Yes, I did, Mr. Collins.

I would like you to revise your estimate at least to say that it's "99 percent sure," because here is one person -- and I've told you before, at the time of TMI, that my grandson

was two weeks old. He's now a year-and-a-half old, and we will have psychological concerns about him, and we will suffer stress as long as I live, and until at least 20 years from now.

So I don't know how you can say that there will be no long-term psychological stress.

(Applause.)

MAYOR MORRIS: Ladies and gentlemen, thank you for coming.

I would like to thank the NRC, DER, and EPA, for coming here and making this possible. I would specifically like to thank Mr. Collins for spending three hours with us and, I think, answering your questions to the best of his ability.

Thank you, Mr. Collins.

(Applause.)

(Whereupon, at 10:32 p.m., the public meeting in Lancaster, Pennsylvania, was concluded.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

In the matter of: PUBLIC MEETING REGARDING NRC DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT RELATING TO DECONTAMINATION OF TMI UNIT 2

Date of Proceeding: October 6, 1980

Docket Number: _____

Place of Proceeding: Lancaster, Pa.

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Jane M. Beach

Official Reporter (Typed)

Jane M. Beach

Official Reporter (Signature)