NUCLEAR REGULATORY COMMISSION

In the Matter of:

METROPOLITAN EDISON COMPANY	)	
	)	DOCKET NO. 50-320
THREE MILE ISLAND UNIT II	)	

DATE: October 8, 1980 PAGES: 1 thru 75

AT: Newberry Township, Pennsylvania

ALDERSON REPORTING

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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METROPOLITAN EDISON COMPANY : Docket No.

(Three Mile Island Unit II) : 50-320

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Newberry Township Elementary School

Newberry Township, Pennsylvania

Wednesday, October 8, 1980

The above-entitled matter came on for public meeting before the Newberry Township Steering Committee, pursuant to notice, at 7:45 p.m.

ON BEHALF OF THE NRC STAFF:

BERNARD SNYDER, Program Director, TMI Program Office, NRC

JOHN COLLINS, Deputy Program Director, TMI Program Office, NRC

THOMAS ELSASSER, State Liaison Officer, TMI Program Office, NRC

THOMAS M. GERUSKY, Director, Bureau of Radiation Protection, Pennsylvania Department of Environmental Resources, Harrisburg, Pennsylvania

BILL KIRK, Director, TMI Field Station, Environmental Protection Agency

MATT BILLS, Associate Deputy Assistant for Environmental Monitoring, Environmental Protection Agency

P R O C E E D I N G S

MS. SMITH: I am going to let Donna Umholtz make some introductions and tell you what these gentlemen are all about.

MS. UMHOLTZ: Before we get started I do want to point out that there is a stenographer in the corner who will be recording the meeting tonight.

Is there anyone who has any objections to that? We want you to speak freely and if you feel intimidated by her being here we want to know about it now.

MS. SMITH: Why is she recording.

MR. COLLINS: She is recording for the NRC. Our Commissioners have asked us to please try and tape and transcribe the meetings so that they would have an official record of comments made by the public. Those transcripts will be available to you at my Middletown office about a week after the meeting.

MS. SMITH: And the NRC will get to read these people's comments?

MR. COLLINS: Absolutely.

MR. SYNDER: That is the whole purpose.

MR. COLLINS: That is the whole purpose of it, Pat.

MR. SNYDER: Let me elaborate on that. The purpose is is that there are lots of people, whether it is this group or not, that feel it is easier to convey their

message orally. Some people find it difficult, including myself, to write things down and send them. So speak your mind and we are going to consider these comments along with the written comments and give them equal weight.

MS. ULHOLTZ: Does anyone else want to say anything before we get started?

Go ahead.

MR. WOLFE: I would like to make a statement. If they want to put this on the record, that is fine. I feel that this is the easiest and most direct way to express our concerns to the NRC rather than phoning or writing letters.

However, I am agreeable to this recording and transcribing only if our statements will be recorded in their entirety and not isolated segments of what we say. I would also be opposed to having any qualifying statements deleted.

I would appreciate a copy of the transcript upon its completion.

Under these conditions I feel that we would be able to convey what we really feel without anyone getting a distorted version.

I also feel that if an individual has a statement to make which they do not want on the record they should have the privilege of asking to have the reporter stop.

MR. COLLINS: Let me assure you that the court

reporter will transcribe everything you say in total. We ask that when you do have something to say that you identify yourself.

Within about a week after the meeting the written transcript will be available to you. If you feel that there was something deleted I would appreciate hearing from you. We have no intention of deleting anything we say.

MR. WOLFF: Thank you.

MR. SNYDER: We also ask though that if someone wants to delete their statement to please just tell us and we will delete it. She just won't record it. Simple enough.

MS. UMHOLTZ: Are there other objections?

MR. HATTERER: I have something here I would like to bring out. We need relief from what Met-Ed is doing to our customers. I would like to bring this out and I know I have at least 80 percent of the people in back of me. That is over our township plus York and the other places.

MR. COLLINS: Why don't you go ahead.

HATTERER: Channel 8 went to work last month broadcasting on their news, that is what they told me, that Met-Ed was not allowed to go to work and put them surplus charges on the bottom of their bills like they have been doing here.

I don't have no education. I am pretty well licked from my last operation. If you want to read them

surplus charges and taxes -- you read the first one and then I will tell you what I was told from Harrisburg.

(Mr. Hatterer hands documents to panel.)

MR. COLLINS: Well, there is a figure here of a 7.29 percent state tax surcharge.

MR. HATTERER: That is what?

MR. COLLINS: $2.65.

MR. HATTERER: Now, that $2.65 is a state tax that the Met-Ed is collecting off all of these people. That is what this outfit told me, and they never paid a cent of that to our government. Now how many years has that been?

Now, it ain't much coming off of this monthly bill, but coming off every bill that we have coming due. It ain't just a clean-up cost. We are getting costs plus that. See!

(Indicating on documents handed to the panel.)

Now, if you people want to still pay that much you are welcome to it. Now, I went to work and I paid my bill which was $36.41. I paid that. Their state tax charge and their two other charges came to $28.51. There is the check.

(Document shown to panel.)

Now, on the other side of the bottom of that bill you can see that I paid $36.41. Now here is a check of what I did not pay them.

(Document handed to panel.)

Because if they are not paying our state government that surplus tax that they charge us why should I pay them to put it in their pockets? Do you follow me?

MR. COLLINS: Yes, I do, sir.

MR. HATTERER: Now, the next one is a cost of $18 and what?

MR. COLLINS: $18.64.

MR. HATTERER: Now, that is one cost. See! I don't know what it is for and I don't think any of you hardly know what it is for. Then there is one below that of $7 and ---

MR. COLLINS: --- and 22 cents.

MR. HATTERER: --- and 22 cents. See! Now, them are the three charges on there.

Now, here Met-Ed has gotten in cahoots with three to five other companies; that is current. Now, they are getting current from one company that is charging Met-Ed 14 cents for it. Now, this is from this office here.

(Documents shown to panel.)

From that office there. They are charging us 48 cents for a kilowatt and they are paying 14. So in other words if I am right they are getting three times, not two times, they are getting three times the cost.

What are they doing with this money?

Why should we pay all that extra money?

Now, if they were to charge like 15 cents or 16 cents a kilowatt I don't think too many people would holler about it.

How many people know that Met-Ed is doing that? How many of you know that.

Did you know it?

VOICE: Yes.

MR. HATTERER: Well, you are lucky.

(Laughter.)

MR. HATTERER: Did you know it, that Met-Ed was charging that extra money? They pay 14 cents a kilowatt, see, and charge us 48 cents for it.

(Indicating to panel.)

Now, the office up in Harrisburg, the one that I talked to, I wanted to go to the government office and they wouldn't let me in.

MR. COLLINS: Which, the Pennsylvania Public Utility?

MR. HATTERER: Yes. Do you know where it is at? On the first floor there where we pay our automobile tax and driver's license. I went in there and this is what that man told me.

Now, I said to him, I said "Now, you know this." They follow it up what Med Ed is doing. I said, "You know this here. What are you doing about it?" They are sitting

on their eggs doing nothing. They are not doing a thing about it, not a one of them in that office.

I said, "Shouldn't the overseer take that and give it to the other office?" That would be this one here, and I don't know which one it is or what it is. Maybe you do. I don't.

(Indicates on document to panel.)

MR. COLLINS: Consumer Protection.

MR. HATTERER: Then they proposed to take it to another one that is one of the committees up there and then they were supposed to do it. Well, what do we want with them two offices there or maybe three if they ain't going to do nothing? Whe they find this stuff out they sit on their fannies and le it go. What do you want to pay that money out to them people for? It is our tax money that they are getting. Am I right or wrong.

MS. SMITH: Mr. Hatterer, I am not sure they are the guys.

MR. HATTERER: What?

MS. SMITH: You are right with everything you say, but I am not so sure they are the right guys.

MR. HATTERER: All right, but they can help us to get this rolling and get it stopped. That is my opinion.

I talked to the District Attorney in York. Now, he won't take it in his office but he said he would help outside of his office. I talked to Channel 43. They were

going to send a man down to where I paid my bill. But I waited an hour and I had to go up here to this office and he didn't show up. So I went in and paid it and there were several other ones there and they thanked me for what I was doing.

Now, that is my opinion. Now, if any one of these other people have got something to say and you want to listen to them, fine. I have said my piece, and I hope to God that you people do something and we will help you keep that darned place cleaned up.

(Applause.)

MR. GERUSKY: If you will give me your name and address, I will call Sue Shanon tomorrow morning and ask her to have them contact you and explain to you what is happening with the bill and what they are going to do.

MR. HATTERER: Well, if you want to write it down I will give it to you.

MR. GERUSKY: Yes.

MR. HATTERER: My name is Harry D. Hatterer. I have a telephone number if you want that, too, a private telephone. I live on Fairmont Avenue in Newberry Township. My mail box is R. D. 1, Manchester, Box 230-A because there is a box 230. So I have to have the A put on it for me to get it. My phone number is 266 -- I don't know the zip code number.

VOICE: 17345.

MR. HATTERER: What was I going to say?

MR. SNYDER: Your phone number.

MR. HATTERER: Oh, my phone number is 266-1330 and it is a private phone. I am not home all the time. Let it ring a little while because I have a little hard time getting up and getting around with these four discs out of my back.

MR. GERUSKY: You will get a letter from the Public Utility Commission explaining what the bills are and why they are there and what they are going to do about them.

MR. HATTERER: All these people, I know they don't know what it is all about.

MR. GERUSKY: I don't either.

MR. HATTERER: I have got to have that bill.

(Documents handed by the panel to Mr. Hatterer.)

MR. GERUSKY: I don't get a Met-Ed bill so I haven't seen that before.

MS. UMHOLTZ: Thank you, Harry.

MR. HATTERER: You are welcome.

MR. ULHOLTZ: We are going to continue on with the program. If no one has any objections we are going to roll with it.

Will you gentlemen be kind enough to introduce yourselves and then proceed.

MR. COLLINS: Why don't you go ahead.

MR. GERUSKY: I am Tom Gerusky, Director of the Bureau of Radiation Protection for the Department of Environmental Resources.

I guess it was a couple of months ago now the Secretary of Environmental Resources and the NRC staff, we got together and decided that it was necessary because of the thickness and the details in the draft environmental impact statement that there be some meetings held throughout the area with as many groups as possible and at as many locations in the area as possible for a discussion of the environmental impact statement, the draft environmental impact statement, so that individuals can ask questions and submit their comments.

We are still reviewing the document ourselves and haven't gotten our comments together on it to be submitted to the Governor who will send them off to the Commission and EPA at the other end is doing the same thing. So we are not completely satisfied with the document. We do have some minor problems with it at the present that may be major if we can't get them resolved.

We thought it was necessary for the public to get involved and they have the opportunity to get involved in this end. So here we are. This is our about 30th meeting in the last 30 days. If we fall asleep during John's

presentation is because we have all heard it 30 times.

(Laughter.)

Here tonight are two people from Washington also, Dr. Bernie Snyder, who is Director of the TMI Program Office, and Matt Bills who is the Assistant Director for Research and Environmental Monitoring or something with the EPA in Washington. We also have John Collins who you know will be leaving the area as soon as someone volunteers to take his place and that means that he will probably be here for the next four or five years.

(Laughter.)

MR. SNYDER: We are looking for applicants.

(Laughter.)

MR. GERUSKY: John has accepted a job of promotion in Texas as Assistant Director of the Regional Office. He deserves to get away from the area and he deserves the promotion because he has done a heck of a good job in keeping an eye on what has been going on down there.

We feel that it is important that he tell the story, so John. You can also fill them in on what happened in the last two days.

MR. COLLINS: We are very pleased to have the opportunity to come over and speak to you. I have seen many of you at many of the meetings over the last 18 months.

(Slide presentation.)

MR. COLLINS: As Tom indicated to you, the purpose of these meetings that we have been holding over the past several weeks now has been to discuss with the residents in the area around Three Mile Island the contents of the Programmatic Environmental Impact Statement.

We recognize the document is a very complex document. By coming out and discussing it with you and then listening to your comments and urging you to supply us written comments if you have any we felt that that would be a way for us to participate with you and you could participate with us in knowing what is going to occur over the next several years during the clean-up of TMI-II.

Before I get into the Programmatic Impact Statement, though, I think it might be worthwhile to discuss with you a little bit of the actions that have occurred over the last several weeks concerning the Pennsylvania Public Utility Commission and the financial problems facing Metropolitan Edison at the present time.

If you follow the newspapers, back in July of this year Metropolitan Edison applied to the Public Utility Commission for emergency rate relief in the amount of $35 million. At that same time they also applied for a general rate increase of $76.5 million.

At about the end of August the Public Utility Commission denied Metropolitan's request for an emergency

rate relief. They did although schedule a hearing on the general rate increase for April of 1981.

As a result of that denial Metropolitan Edison submitted a letter both to the Public Utility Commission and to the Nuclear Regulatory Commission on September 12th, a letter indicating that certain programs would have to be cut back because of their lack of cash flow.

Following that action the Public Utility Commission issued a cease and desist order telling Metropolitan Edison that their revenues received from the ratepayers were not permitted to be used to clean up TMI-2. This, of course, gave Metropolitan Edison some difficulty in interpreting that order just as to what was included in clean-up and what was included as far as maintenance and operation of the plant to maintain it in a safe condition.

As a result of the uncertainties Met-Ed applied to the PUC for clarification of the order and PUC denied a hearing to clarify the order. As a result of that action Metropolitan Edison then appealed to the Middle District Federal Court in Harrisburg for a temporary and a permanent injunction.

On October the 3rd Metropolitan Edison was denied a temporary and permanent injunction by the Federal Court. However, the judge, Judge Herman, did permit legal briefs to

be filed by this Monday, October the 6th, and did allow a hearing on the matter on October the 8th which is today.

However, after the judge did make that action negotiations began between the staff of the Public Utility Commission and Metropolitan Edison. Met-Ed on Monday applied to the PUC asking for a stay on that hearing because of the negotiations that were going on. The judge did allow that and he has now postponed indefinitely a hearing on the matter.

While all this was going on, of course, the NRC was very much concerned about the actions of the Public Utility Commission and on October the 3rd the Nuclear Regulatory Commission issued a policy statement. I would just like to read part of it to you to let you know that the NRC of course if very much concerned about this action and how it might impact on the plant itself and future clean-up activities.

The NRC Commissioners have stated: "We take no position on whether the actions of the PUC create an irreconcilable conflict with NRC requirements which have been imposed on Met-Ed or which may be imposed in the future. We wish to clearly state, however, that in the event of any such conflict, NRC health, safety and environmental requirements must supersede 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 this Commission for the purposes of protecting the public health, safety or the environment."

We are following very closely the actions of the PUC and Metropolitan Edison towards the goal of reconciling the differences that now exist.

As you read in the newspaper Met-Ed has announced a drastic cutback in some of the clean-up programs. There have been up to date approximately 250-some people laid off at the plant. Additional furloughs will be made over the next couple of weeks which will of course have an effect on the final clean-up of the plant and the time period in which the plant will be cleaned up. We will talk about that as we go through the impact statement.

As most of you know, in the latter part of August, August the 14th, the NRC published a draft Programmatic Environmental Impact Statement. That statement was formally noticed in the Federal Register in accordance with our regulation on August the 22nd. We began a 45-day comment period.

As a result of numerous requests from the public in this area we have extended the comment period an additional 45 days which now ends on November the 20th, and, as was indicated earlier, during this period of course we

are going out and talking to the public about it and trying to answer any comments or questions you may have with regards to it.

The purpose of the Programmatic 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 progresses at TMI-2. It was also one of the purposes to engage the public in the Commission's decision-making policies as the clean-up progress in accordance with the National Environmental Policy Act.

Of course, the other one was to focus in on the environmental issues and alternatives before commitments to specific clean-up methods were selected.

I would like to comment that in regards to the second one you may know that with the construction and the installation of the Epicore II system the NRC staff did publish an environmental assessment on the use of the Epicore II. We did publish an environmental assessment on the purging of the containment building. In both instances the Council on Environmental Quality criti[illegible]zed the NRC. They felt that segmentation of each operation during the clean-up operation was not the manner in which it should be handed. They recommended to the Commission that we produce a total environmental impact statement covering all of the

operations that would be performed during the clean-up of the plant and defueling of the reactor.

In November of '79 the NRC Commissioners issued a policy statement to the staff telling it to develop a Programmatic Environmental Impact statement and as a result of that action we did produce this document which we published in draft form in August.

(Slide.)

The Programmatic Environmental Impact statement does contain and overall evaluation of the environmental impacts of decontamintion and the disposition of the radioactive waste resulting from the March 28th accident at TMI-2. It provides a description of the proposed clean-up activities and a schedule for their completion.

I recognize that in the draft the schedules that appear in there will have to be revised as soon as we can determine the impact of the recent action and the recent cut-backs in the programs at TMI-2.

It also provides a description of the alternative methods for accomplishing the principal activities and the environmental impact assessment of those methods which are considered feasible.

I should point out that the document itself is not a decision-making document. It does not make specific recommendations as to what methodology should be used for

the various clean-up activities. It does present the alternatives. It will, however, be used in the decision-making process.

What I mean by that is that once the final impact statement has been published then the licensee, Metropolitan Edison, would propose to the NRC various methods for clean-up activities at TMI-2. The staff would then review those alternatives or those methods selected or proposed by Metropolitan Edison. If they fell within the scope of the environmental impact statement then the staff would not be required to issue any supplements to it.

If, however, Metropolitan Edison were to produce or recommend to us a method outside the scope of the document then of course we would have to evaluate it and, if necessary, we would have to issue a supplement to cover that particular method proposed. So that over the course of the next several years it may be necessary for us to issue supplements to the document.

(Slide.)

I think it is important to point out, too, wh the document does not contain. It does not contain any discussion about the accident itself or the environmental impacts resulting from the accident. I think those impacts in the accident have been well described in the many reports published by the investigative committees that looked into

the accident shortly after it occurred, the Wildeman Report, the Kemeny Commission, the NRC Office of Inspection, the Bickwier Report and the State Commission Report. I think those have well documented the impact. So it does not in any way discuss those impacts on the accident.

It does not discuss the ultimate disposition of the TMI-2. It does not discuss whether it should be decommissioned when it will be restored. That is an issue that will be settled at a later time.

It should be pointed out though that no matter whether you want to decommission the point or whether you want to restore it for reuse, the plant must be cleaned up to the same level. So really at this point in time it is immaterial to the discussion of the impact statement as to whether or not the plant will be decommissioned or whether the plant will be restored. The plant has been ordered shut down and it will remain in that mode during the clean-up operation. The plant must be cleaned up.

As I mentioned, it does not present recommended choices for specific activities during the clean-up program. It gives you the alternatives and then the licensee will propose to the NRC a methodology for the major steps in the clean-up operation.

(Slide.)

There is a schedule for the completion or major

milestones. As I indicated, the Commission did issue in November of '79 a statement which required the staff to produce the EPIS. The comment period for the EPIS now ends on November the 20th. It is the intent of the staff to try [redacted] finalize the document and present it to the Commission their review by the end of February and then, pending Commission action, a final publication by the latter part of March.

That is entirely different than what we had originally projected but with the extension of the comment period you can see the domino effect that it has on the final schedule.

(Slide.)

I would like to go through now the major conclusions that are contained in the document. I recognize that if you have the document you will agree that it is very complex and very technical. However, I would recommend to you that you do read the summary section. A lot of effort went into writing that section in layman's language so that you could understand it.

At the conclusion of going through this presentation if you have questions then about specific conclusions that we have reached or the staff reached then we will be happy to answer them or any other questions that you may have.

Of course, one of the major conclusions that the document contains is that through the whole clean-up period the staff estimates that the total dose or the maximum dose to an individual off-site should not exceed approximately 1.6 millirems. That is the cumulative dose during the whole clean-up operations that will occur over the next several years.

The risk of cancer is about 2.2 in 10 million which can be compared to about one in five from normal occurrences in the United States.

With regard to the genetic effects we calculated approximately 4.2 in 10 million. That can be compared to about 1 in 17 from normal occurrences of hereditary disease.

We also took a look at what the total dose would be to the population within a 50-mile radius of the reactor and we have calculated about a dose of six person-rem which we can compare then to about 255,000 person-rem to the same population annually from natural causes.

(Slide.)

The second major conclusion, we took a look at the number of radwaste shipments that will have to be made during the total clean-up operation and those shipments would occur from here to Richland, Washington, or to some other disposal site. At the present time that is where the waste from TMI-2 is being shipped.

We took a look at what the exposure would be to an individual if he spent three minutes at an average distance of three feet from the vehicle and we calculated that that does would be approximately 2.3 millirem. Again, calculating the risk, the answer would be 1.7 in 10 million and the genetic defects would be about 3.1 in 10 million.

Now, if you take a look at what the population does would be, we assume that there are approximately 700,000 people that reside along the 2,300 mile route from here to Richland, Washington. On that basis we calculated that it would be in the range of about 26 to 66 person-rem.

Now, the reason for that wide range is that there is an uncertainty at the present time as to the actual number of shipments that will be made. Until we have more definitive information about the conditions of the containment building and finalize on what particular methodology will be used to clean up the plant we have a made a high and a low estimate looking at the alternative ways for the plant to be cleaned up and that is why there is that large uncertainty in there. As more information becomes available those numbers will be refined in the final environmental impact statement.

Of course, one of the more crucial things that will have to be considered is what the exposure will be to the workers during the total clean-up of the plant. We

calculated the cumulative dose at between 2,700 and 12,000 person-rem. This could result in about .3 to 1.6 additional deaths due to cancer and from about .7 to 3 genetic defects.

Again, the uncertainty in the wide range in those two numbers was due to the fact that at the time the draft impact statement was developed the containment entries had not been made. Now that the containment entries have been made the information has been received from the first two entries and there is another ent / planned this month.

It certainly would appear that the initial review of the data would suggest that the activity levels inside the containment building as not as high as we had originally anticipated. Consequently in the final statement those numbers will be revised downward.

I should also point out that the dose to the workers of course must be limited within our regulations not to exceed three rem and a quarter. Metropolitan Edison has imposed an administrative limit more conservative than our regulations which would limit their exposure to the worker to one rem and a quarter.

(Slide.)

Of course, one of the major items during the clean-up of the plant is cleaning up the water that exists in the auxiliary building, the water in the containment building and the water in the primary system. There are, as

have been discussed in the impact statement, several alternative ways of cleaning up that water and I will discuss those a little bit later with you.

The staff did conclude that after suitable dilution processed water could be released to the Susquehanna River without any adverse environmental impact. I want to point out very quickly, though, as I did in Lancaster on Monday night that the NRC has not made any decision on what to do with the water that has been processed from TMI-2 to date nor the water that will be processed that remains in the reactor building in the primary system.

We did enter into an agreement with the City of Lancaster and Metropolitan Edison after we were taken to court by the City of Lancaster and we did make an agreement with them that no accident generated water would be discharged from TMI-2 until after the NRC had produced its final environmental impact statement and at that time Metropolitan Edison would propose to the NRC a method of disposition of the water and then the NRC Commissioners would make that ultimate decision.

Later on we will discuss the alternatives that are considered in the impact statement.

(Slide.)

We also of course looked at what the worst

accident that occur at TMI-2 at the present time. The staff believes that the worst accident would be if the water inside the containment building began to leak out of the buiing into the ground water and then reach the Susquehanna River.

Pased on the activity level contained in that water at the present time we calculated it would take approximately 1.6 years to reach that travel time to the Susquehanna River. At that point if an individual did drink approximately two liters of water per day per year he would receive a dose of approximately 31 millirems. If he ate fish from the river in the order of about 21 kilograms or 40 pounds of fish he would receive a dose of about 27 millirems.

Now, if one compares that even on the accident situation to what we receive annually from the natural background in this area it is still a small fraction of that, the annual background being approximately 116 millirems.

(Slide.)

Of course one of the major items that the public in this area have been concerned with has been the psychological stress. The NRC staff together with our consultants did of course take a look at this. We conclude that the high levels of psychological stress have been relieved since the venting of the Krypton 85.

We do, however, conclude that low levels of stress will probably continue throughout the whole clean-up operation, but that we see no long-term effects on the great majority of the community.

(Slide.)

The long-term nature of the clean-up program presents a potential for chronic stress for some people. Completing the clean-up as expeditiously and as safely as consideration allows is therefore desirable. I would just like to add it is not only desirable it is certainly necessary.

(Slide.)

Of course in doing an environmental impact statement one is required to look at both the social and the economic impacts. The impact statement does address that. We looked at such things as reduced property values, competition between the work force, temporary housing and also traffic conditions that may occur. We looked at the potential economic impacts including the effects of increased electricity rates, reduced tourism and possibly resistance to consumption of agricultural and fishery products because the public may think it became radioactively contaminated.

It is our interesting that in a number of our meetings, and one in particular when we met with the

Developing County Commissioners several weeks ago. The Developing County Commisioners undertook an independent review of property values in the developing county and they saw no reduction in property values as a result of the accident or the clean-up operations at TMI-2.

(Slide.)

Of course, we talked about the conclusion about the dose that may be receive with all the radwaste shipments that will occur during the clean-up. Based on the information that is available to us at this time we are estimating the number of shipments to be in the order of about 660 to about 1,700 shipments that will occur over the clean-up operation.

We saw no cause for traffic congestion because these shipments will be made over a long period of time. Of course, I should point out that with regards to all the radwaste shipments off the island they must meet both the NRC regulations for packaging and shipping and the Department of Transportation's.

(Slide.)

We also discuss in the impact statement a probable need to retain the radioactive fuel and the other high activity wastes from TMI-2, it may have to be packaged and stored on the site until a decision is made as to the ultimate disposition of those wastes.

The spent fuel, of course, the the damaged fuel, once the head is removed and we are in a position to remove the fuel it will be put into steel cans and sealed and it will be stored in the fuel pools that now exist in TMI-2. There will be activitiy wastes that will be generated as a result of cleaning up the high activity water. These are collected on resins and then held in steel liners and they have been and will be stored on the island in concrete engineered storage facilities until a decision is made as to where that material will be disposed of.

We have entered into discussions with the Department of Energy and we are looking at various alternatives as to how it might be shipped, how often and to where it will be shipped. I can assure you it is not the intent of the NRC to make TMI a burial ground nor is it the state's.

(Slide.)

We do believe however that the technologies and methodologies do exist to clean up that plant. It may be necessary to modify those to fit the circumstances that exist at TMI-2, but based on the experience that has been gained and the facilities that were previously owned and operated by the Atomic Energy Commission and now by the Department of Energy the methodologies to clean up this plant do exist.

There is additional experience that has been gained and will be factored into the clean-up of some of the European communities. There have been facilities that have been highly contaminated and have been cleaned up very successfully. That technology will be utilized in cleaning up the plant.

I think one major problem facing the clean-up is going to be the removal of the fuel because at this time there is a great uncertainty as to the condition of the fuel in the reactor. We will not know that until the head is removed and we are able to examine the condition of the fuel. Of course, that will dictate the methodology to be used to remove it.

But even with that uncertainty damaged fuel has been removed successfully from other reactors and we believe that technology can be modified to remove the fuel from TMI-2.

(Slide.)

The staff estimates that it will take approximately five to seven years to complete the clean-up operation. That was the beginning of April 1979. I think you can appreciate with recent events facing Metropolitan Edison concerning their financial stability these schedules may of course slip. At this time we are not in a position to really determine the impacts, but they will of course

develop over the next several months and that information will have to be factored into our final environmental statement. But certainly the period of five to seven years is our most reasonable estimate at this time.

(Slide.)

I think all of us will agree that the clean-up will alleviate the several potential hazardous conditions that exist at TMI-2. For example, there is a possibility of accidental releases of radionuclides to the environment through mechanical or human failure. Cleaning up the plant and removing the fuel of course removes the potential hazards.

The staff has concluded that on balance the benefits of decontamination, core removal and disposal of the radioactive wastes from the accident at TMI-2 greatly outweigh the environmental costs of the clean-up activities.

(Slide.)

I would like to talk a little bit about the alternatives that have been considered for cleaning up the plant. I the first two are really the only two viable alternatives, but in accordance with the legal requirements we are required to look at all the alternatives.

Of course, full clean-up and salvaging and decontaminating the equipment is one of the alternatives.

Full clean-up and removal of the equipment with

minimal or no decontamination.

Then the third and fourth ones certainly are alternatives but not as viable as the first two: partial clean-up with defueling and partial clean-up with fixing the core in place.

Of course, No. 5 is certainly not a viable alternative: no action. It is necessary to clean up the plant. As some people have suggested, it is not possible to lock the door and throw the key away. Until the plant is cleaned up and the water is cleaned up and the core is removed there remains a potential problem both to the health and safety of the public and to the workers. So that no action is certainly not, in my opinion, a very viable alternative.

(Slide.)

We mentioned earlier that methodologies does exist for cleaning up the water that still remains in the reactor building and in the primary system. These are a number of the alternatives that were discussed in the impact statement.

The zeolite resin system is the system that has been proposed by Metropolitan Edison that is commonly referred to as the SDS or the submerged demineralizer system.

We discussed the use of evaporation followed by an organic resin system for cleaning up the water.

We also discussed solidification of the water and

Portland Cement shipping it off-site.

Then direct solidification in asphalt which is a system that has been used successfully in many of the European communities.

Then the last one was just filtration of the water and then followed by storage on site.

(Slide.)

As we mentioned earlier, it is possible to discharge the water after it has been cleaned up into the Susquehanna River with no adverse environmental impact.

But in looking at the alternatives, these are the alternatives that the staff has considered for disposing of the water.

We looked at retaining the liquid in tanks at the site for a long time. The question is how long is a long time. Well, normally in the licensing process when we license a reactor we normally consider the life of the reactor to be approximately 40 years. So we are talking in that range of the number of years for retaining the water.

We looked of course of discharging the water into the Susquehanna River. We also discussed the construction of ponds on the island and then taking advantage of solar evaporation evaporating that water into the atmosphere.

Another methodology of course would be to use mechanical evaporation again releasing it to the atmosphere.

Another alternative certainly would be deep-well injection. When we are talking deep-well injection we are talking about wells that are drilled into the ground a thousand-plus feet and then disposing of the water in that method.

We looked at solidification of the water with chemical agents and then shipping to a licensed burial ground or shipping the liquid for remote processing and disposal at some other location. For example, it could be moved to a location near the ocean and processed and disposed of in the ocean, but I am sure the people in the State of New Jersey would have something to say about that.

We also looked into solidifying with chemical agents into a concrete slab and then storing it on the site.

There are the alternatives. At some future time Metropolitan Edison, as I indicated to you before, will make a proposal to the NRC and then a decision will be made as to how that water will be disposed of. At the present time all of the water is being processed, is being stored with in the auxiliary building and in other tanks at TMI-2.

(Slide.)

I put this slide up because there was an awful lot of concern after our initial meeting in Harrisburg on September the 3rd. Of course, if you read it in the newspaper there was a chart given in our impact statement

which was in error with regards to how waste shipments are moved off from TMI-2. In the impact statement it showed it going up into Harrisburg and then crossing the river and then going up Highway 11 and 15. That was an error. That route has never been used. That was a route that was proposed for an overweight shipment by Metropolitan Edison but it had never as an actual routing been used. It was an oversight. It was a mistake on our part and I certainly take responsibility. I should have reviewed it more carefully.

The routing that is used is what is shown here and all the waste that moves off of TMI leaves the site on 441 and picks up Highway 230 and takes that to Interstate 283 up to 83 and then onto Interstate 81 where we pick up Interstate 80 and then go out to the Ohio border. That has been used for all the shipments going to Richland, Washington and there is no reason to believe that that routing would change in the future during the clean-up operation.

That covers the major part of our presentation. Dr. Snyder and myself are certainly available to answer any questions along with Matt Pills from the Environmental Protection Agency. If you have any questions concerning the monitoring program of course we have Tom Gerusky with regard to the state employees. If you have questions I would like

you to identify yourself for our court reporter so that she can properly give credit for the comments or questions.

Do I have any comments or questions?

Yes.

MR. McKAY: Brian McKay. John, you keep telling us about the water problem down there and every once in a while we understand that Met-Ed makes another test well and finds some more tritium and of course everybody keeps telling us we can't find out where it is coming from and that that is a process of nuclear fission. That stuff can't ever be filtered. What is going to be done to alleviate that problem and find out exactly where the tritium leaking from from damage due to No. 2 or Unit 1?

MR. COLLINS: Well, I think that if you followed the reports that I have published in the Weekly Status Report that I put out and the information that was submitted several weeks ago by the consultants that were hired by Metropolitan Edison from Princeton Laboratories together with our evaluation of it, I can say this, it is not coming from the reactor building.

We believe that what has happened is that there have been known leaks in the outside storage tank known as the boric acid water storage tank. Shortly after the accident or shortly after the accident stated water was pumped from the boric acid water storage tank in Unit I over

to Unit II to give us a back-up supply of borated water in the event that we had to inject it into the reactor. That water did contain activity.

Since the accident there have been leaks in the tank, not in the tank itself, but the valve leaked. The seals will leak. This is an outdoor storage tank and the piping is all outside and the valves are outside and it has been known to leak.

The tritium that has been detected has been in observation wells which are drilled shallow wells and are drilled into the ground and the soil is analyzed. In all those cases where we saw high activity it came from ground soil samples in that area around the boric acid water storage tank. None of the samples close in to the reactor storage building itself showed any increases above the range that we would normally expect to see in natural background.

If it were the reactor building, first of all, the tritium that we are seeing would be considerably higher than what we are seeing. The highest we are now seeing is about on the order of four or five times above the natural background. If it were coming from the reactor building it would be considerably higher than that. Also, you would also see the other fission products of cesium and strontium and we have not identified that in the water samples or the soil samples.

So in my opinion I am satisified that it is not coming from the reactor building. But in the meantime we are continuing the monitoring program to continue to assure ourselves and the public that that reactor building is not leaking.

Mr. McKAY: Thank you.

MS. WELLS: My name is Diana Wells and I would like to say that for one thing I think we all can share your personal desire as expressed by Mr. Gerusky to put TMI behind you and get on with your life because that is what all of us would like more than anything else to be rid of this problem. However, I do have some questions about the presentation that you gave.

One is that you stated that No. 3, the partial clean-up and defueling is not what you would consider a reasonable alternative and I would like for you to elaborate on that, please, and give a little bit of your reasoning because it seemed to me that an awful lot of waste water is going to be generated in that clean-up process and it seemed to me that the study did indicate that it would be a lot lengthier process and a lot more closely process to deal with all this excess waste water and the other materials that would be involved in cleaning up the plant and the total clean-up versus just getting rid of the core. Would you explain that, please?

MR. COLLINS: Well, first of all, for the record, I am not trying to put TMI-2 behind me. I leave the area with a lot of regrets. It has been a very frustrating job at times. On the other hand, I do believe that it is a very essential job up here and the plant must be cleaned up. So I am not running away from this thing by any means.

With regards to partial clean-up and defueling, that is a short-term solution to a problem. If you want to take and you say, well, I am going to only decontaminate the inside of the containment building to some degree that allows me to get in there any take out the core. Then you ask yourself, fine, I have done that, that is partial clean-up and defueling of the reactor, but you still have the long-term problem of what are you going to do with that plant? Are you saying then that you just close the door and lock it up and you forget about it, because you cannot do that.

All plants eventually are going to have to be decontaminated and it is within environmental considerations that once the plant's useful life has been exceeded or when you have completed that useful life you then want to restore to the near condition the environment from which you started. So it is not possible to make this a burial ground.

That is what you would have if you had partial

decontamination because you are going to have to have long-term surveillance to make sure that no intruders penetrate the area and are subjected to activity levels because the activity is going to be inside there even if you partially decontaminate it because you are dealing with long half life. Strontium and cesium have a half life of 28 and 30 years respectively.

Now to get down to a innocuous level where it no longer presents a health and safety problem you are talking in the order of 280 to 300 years. So that by just partially cleaning up does not solve the problem. Then you are going to have to have long-term surveillance for a period of that many years to assure that you don't have people walking into the island and accidentally or deliberately exposing themselves to radiation. We can't have that.

MS. WELLS: The waste is going to have to be stored somewhere for 300 years.

MR. COLLINS: That is correct.

MS. WELLS: So if the core was out and if the waste water was solidified with cement or whatever alternative you have, are you saying that would eventually leak through the cement walls and into the environment?

MR. COLLINS: No. Because you clean up the water in the tanks and you clean up the water that now exists in the sump in the reactor building and you clean up the wate

r that is in the primary system, that does not remove all of the radioactivity. In the bottom of the tanks you have sludges and the internal piping systems are contaminated because you had radioactive contaminated water in there and that must be cleaned up or it represents a potential hazard later on. It is not just a very feasible thing to do, to partially decontaminate it.

If you wanted to decommission the plant and tear it down you would have to clean up those systems and move them off the site.

MR. SNYDER: There is another way to look at it, if I may, John. It is pretty simplistic, but the question boils down to do you want to have a waste disposal site in the middle of the Susquehanna River or not, a long-term many hundreds of years waste disposal site. It is our judgment that that is a very poor thing to even consider. It is just not the place for the stuff.

MS. WELLS: It never was the place for the stuff.

MR. SYNDER: Unfortunately it is there and it has to be cleaned up. That is the problem. The choice of whether it is there or not is one that was made in the past and unfortunately it is now a problem.

MS. WELLS: I think one of the things that concerns me is it seems the desire to totally clean it up which added several million dollars and the refueling, in

the paper they listed the cost for the clean-up and in that cost was added the cost of the refueling the plant, and it seems to me that the big desire is to clean up that plant so that it can be refueled and reutilized rather than what would be the safest way of cleaning it up. They have added a lot of costs and a lot of time in there for completely washing down the walls with hundreds of thousand more gallons of waste water.

MR. SNYDER: Well, the water would be recycled. It wouldn't be fresh water, first of all, this water that John mentioned.

MR. COLLINS: In fact, a lot of the 500,000 gallons that has been cleaned up that was in the auxiliary building to begin with is now a water that is being used as flush water to clean up the tanks. That water then will be cleaned up and that water can be used again for cleaning up the building itself and also the reactor building when that water is removed.

Natually you are going to be generating some water, but it makes sense to just go back and take the water that you have cleaned up and use that instead of generating more water. But with regards to the cost, that is Metropolitan Edison's concern. That is their cost. The include the costs of cleaning up the plant and restoring it. Our concern right now is to clean up the plant.

MS. WELLS: Thank you.

MR. HATTERER: Are you going to allow them to start that plant up again?

MR. COLLINS: I cannot tell you that. That will be decided at a future time by the Commission and not by me.

MR. HATTERER: I think that is what the people want, they don't want that plant started again.

MR. COLLINS: I do not have that within my responsibility. I have been told that TMI II will never start again. TMI has been ordered shut down and will remain shut down until the Commission makes their decision at a future time as to what will occur with the plant, but certainly that is not going to occur in the five to seven years.

MR. McHENRY: Just a question of interest. Have there ever been any plants in the United States decommissioned and the enviroment restored?

MR. COLLINS: Highland Reactor was decommissioned. Elk River was decommissioned. In fact, I believe all of it was removed off the site, wasn't it?

MR. SNYDER: Yes. There have been a number of smaller plants that didn't suffer an accident to this degree. They are small, no question about it, but the principles are still there and they were successfully cleaned up. I happen to have been the manager for the

clean-up of the Hallan plant for the Atomic Energy Commission. The licensee did remove all of the radioactivity from the site and put it back to its original state.

MR. COLLINS: I will give you another example. If you remember back the former Atomic Energy Commission's facility at Idaho Falls, there was the accident of the SL-1. If you now look at the site of that reactor you could never tell that the reactor was there unless you knew that it was there to begin with. It was completely removed and has been cleaned and all of the material was buried from that reactor.

MR. HERMAN: Do you get a higher reading than background right at that spot?

MR. COLLINS: Right now?

MR. HERMAN: Yes. You can't get higher than background reading, they can clean it up that good?

MR. COLLINS: In the case of SL-1 there still is some activity that is slightly above natural background but it is certainly not sufficient to cause a health and safety problem. You could go in and construct on top of that because it was totally removed.

MR. SNYDER: Mr. Herman, let me comment on another reactor that is a very vivid example. The City of Piqua, Ohio, had a reactor. As I recall, it was within the city

limits, a small experimental reactor. It was decommissioned and physically removed. I believe that you can't detect that it was there or it is barely detectable. That was within the city limits.

MR. McHENRY: I just wanted to further my I guess comment more than anything else, the fact that we seem to be doing a lot of experimentation on Unit II in terms of developing systems that can handle the larger commercial nuclear reactors and the fact that, you know, some possible alternatives might be to go so far and continue making some experimentation in other areas with another reactor and the decommissioning process, you know, that you at least know what you have to work with.

MR. COLLINS: I am not sure that I agree with you that we are experimenting on TMI-2. Can you give me an example of what you mean by experimenting on TMI-2?

MR. McHENRY: Well, the comments have been that work has been done with small systems, experimental reactors. From what I understand, you know, I don't think it is a matter of just taking a system and building the parts ten times larger and using that TMI-2. That is being oversimplistic.

MR. COLLINS: I don't really agree with you. The use of ion exchange resin media for cleaning up water is a system that has been used for years in the nuclear

industry. The system is a well-proven system. What we are talking about here is modifying that technology.

That is a particular system, first of all, to handle high activity waste because you are going to have to shield it differently than you would for a normal operating plant. Also, there are other types of materials that are included in there that one would not expect to see the concentrations in a normal operating reators.

I am getting into the chemistry now, but you have some materials that are very soluable in water and you have some that are insoluable in water. There are nuclides in there that are more difficult to remove than one would normally encounter in an operating reactor. So the methodology had to be remodified to handle that, but that does not make that facility with that system an experiment. They know what they are doing. The fact that you have to scale it up a little larger to accommodate the flow does not in any way remove the effectiveness of the system.

As far as clean-up methodologies go, whether you are cleaning up a room 20 by 20 by 20 or you are cleaning up the inside of the reactor building if the contamination in there is the same as the small room the methodology can still be used. It is just going to take you a little longer to clean up 2 million cubic feet inside there.

MS. REHM: I would like to read you something that

you have in your environmental impact statement. It says here "Commercial nuclear power plants are not designed with special considerations for large-scale contamination operations."

MR. COLLINS: That is true.

MS. REHM: So, in other words, this is an experiment?

MR. COLLINS: I don't view it as that. I think what we are saying there is that we are going to have to modify the technologies to handle the situation at TMI-2 but the basic technologies and methodologies exist. That is what we have said in there, too.

MS. REHM: Also according to here it said you have had two major differences than they have had at any other accident or other plant. That is, one, the krypton, and then also the amount of containment in the water.

MR. COLLINS: You know, a lot of the decontamination work in that plant is going to boil down to just scrubbing it with rags and brooms and vacuum hoses.

MS. REHM: With the krypton that is an experiment, right?

MR. COLLINS: No, I don't consider that to be an experiment.

MS. REHM: It was an experiment because here it says the major differences.

MR. COLLINS: Even removing the krypton from the containment building the methodologies existed.

MS. REHM: You never vented it into the atmosphere like we got.

MR. COLLINS: No, that is not true. From the fuel reprocessing plants Krypton-85 was discharged.

MS. REHM: In small amounts, very small amounts.

MR. COLLINS: In fact, in larger amounts.

MS. REHM: In your book I read it somewhere, in small amounts.

MR. COLLINS: The fuel reprocessing plants operated by the Department of Energy discharge more curies of Krypton-85 in a year than the 44,000 curies that were discharged from the containment building.

MS. REHM: Well, that wasn't in the book here.

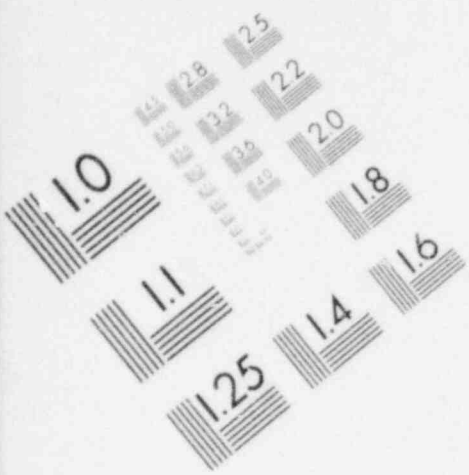
MR. COLLINS: It was in our environmental assessment.

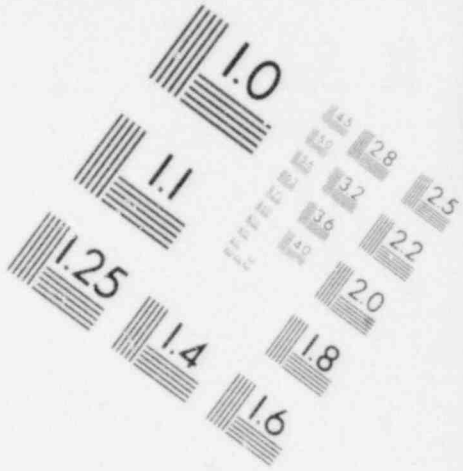
MR. SNYDER: Which is included by reference. We didn't repeat that environmental assessment, but I think we did discuss it there.

The Europeans, for example, routinely have vented large quantities of krypton.

MS. REHM: That doesn't help us here.

MR. SNYDER: But you said it was experimental. I thought that was your point. In fact, the system existed in





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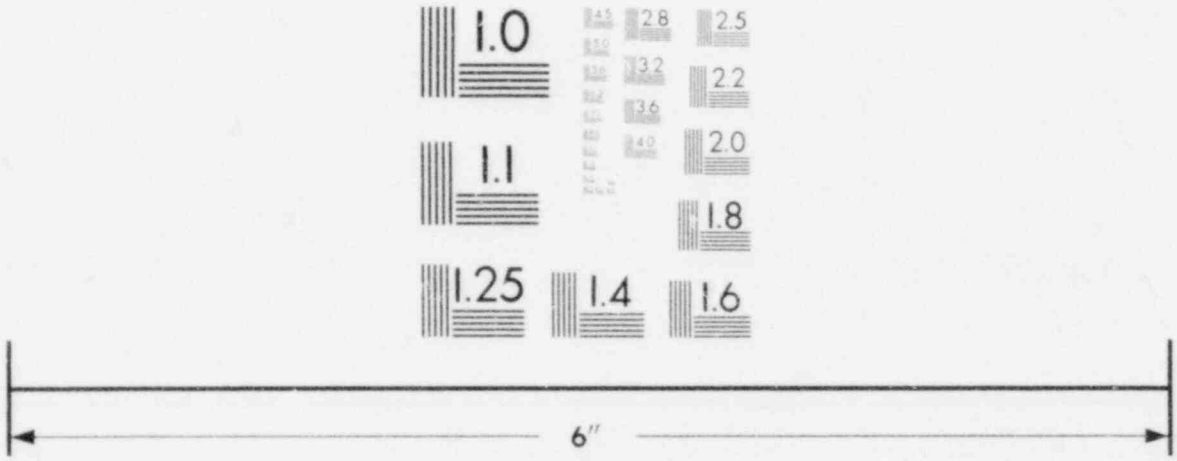

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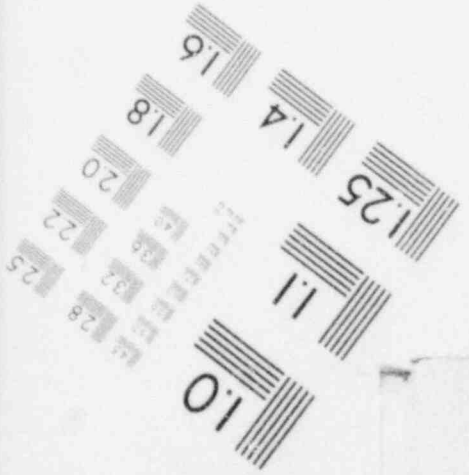

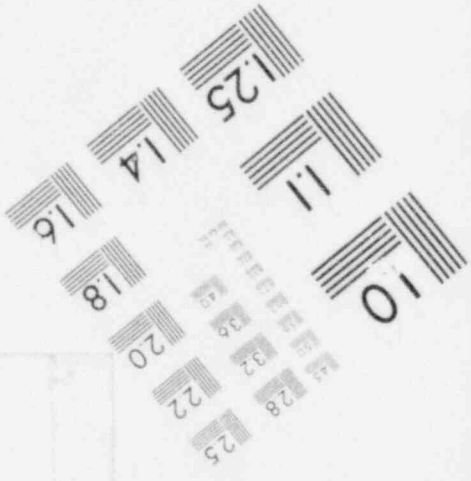

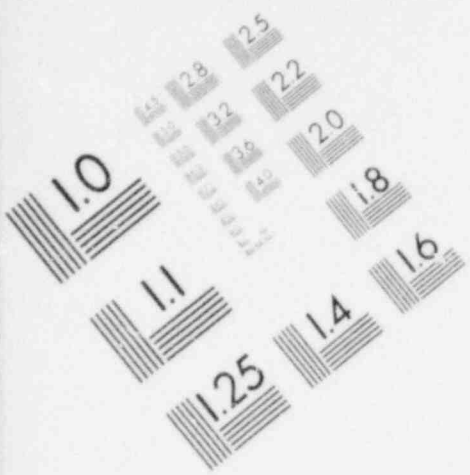

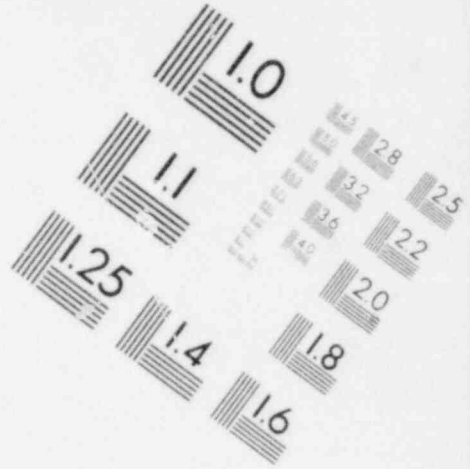

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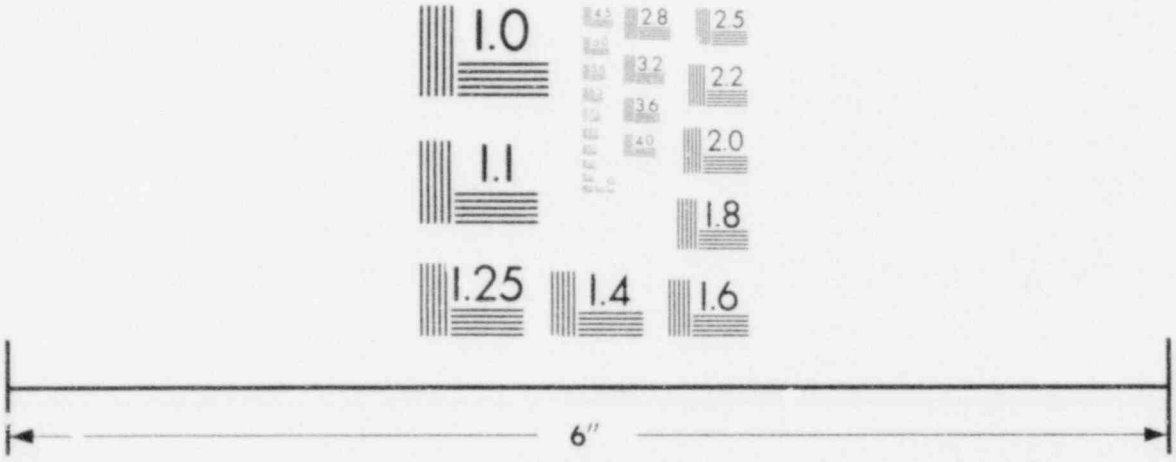

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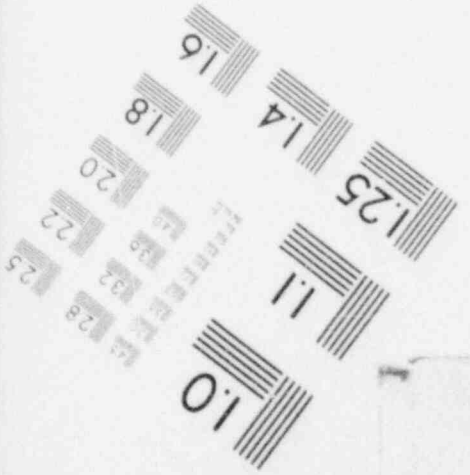

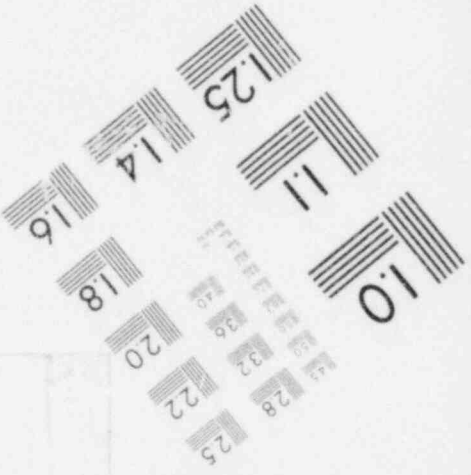

the plant in order to accomplish that. So it was not experimental from that respect.

MR. COLLINS: I am not saying this to be disrepectful when you say you don't worry about the Europeans, but actually the Krypton-85 itself, the biggest problem is that it is adding to the worldwide inventory. Foreign countries have been adding a lot more Krypton-85 than ever comes from our power reactors. A lot more.

MR. HERMAN: Can we stop them? Can we make them stay within our limits or we can't do a thing about it?

MR. COLLINS: I wouldn't say we can't do anything about it because there are international organizations in which this subject is being discussed at the present. In fact, I am on one of those international committees where we are looking at criteria to limit the release of Krypton-85 to the environment. We added very, very little to that total, ever so slightly to that total and that was fully discussed in our environmental assessment.

MS. REHM: What I mean is we added to it, the Nuclear Regulatory Commission did by allowing it to be done.

MR. COLLINS: As I say, it added very little.

MS. REHM: Each little bit added to it. That is the problem.

MR. COLLINS: I certainly don't want to argue the point but we could make that case for all of the radionuclides and materials that are used even in the pharmaceutical and therapeutic and medical facilities.

MS. REHM: Then also something else. You had about transport.

MR. COLLINS: Yes.

MS. REHM: Now, you say if you live in that area you would get a percentage because there are trucks that go by.

MR. COLLINS: If you stood there for three minutes ---

MS. REHM: I live right along a major interstate and I have been living there for 20 years and for I don't know how many years I have seen trucks. Now, they might be low-level radiation and they go by my home periodically a couple of times a week. Okay, now I have been getting that for I don't know how long.

MR. COLLINS: You have been getting no dose because what we said here is if you stood three minutes three feet from the truck according to our regulations the does on contact with that containment cannot exceed 200 millirems. The dose ten feet from the container itself cannot exceed six millirems.

Now, if you are living in your home off the

interstate highway ---

MS. REHM: I work outside a lot.

MR. COLLINS: Still, you couldn't measure how much you would get because the dose decreases with the inverse of the distance. So wherever you are unless you are standing up close to the truck you would receive any.

MS. REHM: I can't prove this, but I met someone who worked at a nuclear power plant and I know they knew when the trucks went through the gate that a lot of times it was much higher than what was ---

MR. COLLINS: I can assure you that does not happen at TMI.

MS. REHM: I have no idea. I can't prove that.

MR. COLLINS: I can because my inspectors check them before they leave the site.

MS. REHM: Well, they were supposed to be inspected, too.

MR. COLLINS: Well, we don't have our senior inspectors at every site that monitor every shipment.

MS. REHM: That is the problem.

MR. COLLINS: We have the limited manpower and Congress hasn't appropriated us enough money to hire full-time inspectors to do nothing but monitor trucks leaving the site.

MS. REHM: This is just one way.

MR. COLLINS: But we are talking about TMI-2. We are not talking about waste from other plants. We are talking about the waste that will be shipped as a result of the accident.

MS. REHM: Well, I realize you are talking about that, but we also are affectd by the others and that is in conjunction with what we are getting from this.

MR. COLLINS: What interstate are you on?

MS. REHM: The one that is right here, 83.

MR. COLLINS: TMI doesn't come up 83. We pick up 83 in Harrisburg.

MS. REHM: I am just saying for people who get this because I know that trucks that go by go through the 83 through Harrisburg which the ones from TMI would be coming across, the way I understand, which is a very congested area and it is tied up a lot of times.

Now, those trucks that go by me, well, here I have followed this and I know they go up that way. Where they go from Harrisburg I have no idea. Those people living there are getting exposed.

MR. COLLINS: They go up Interstate 81. It goes out of 83 and up to 81.

MR. GERUSKY: TMI-1 waste is still being shipped to South Carolina and goes down Interstate 83.

MS. REHM: But what I am saying is that people who

live on that strip right there are getting from all ways. It doesn't matter where it is coming up, they are getting the exposure of TMI-1 and 2, whatever comes from that, plus wherever this other stuff comes from which is probably Peach Bottom.

MR. GERUSKY: It will be an undetectable amount of exposure but that doens't mean it is zero.

MS. STRICKHOUSER: Margaret Strickhouser. I feel, like 90 percent of the people, that the longer it takes to clean this up there might be more danger to it. There might be an unknown danger that might happen to the public the longer the hold off to clean it or decide how they are going to clean it.

MR. COLLINS: I couldn't agree more with you. We have repeatedly stated that, that it is essential that the clean-up program progress and that it be cleaned up and the fuel removed. When that occurs then we are going to alleviate the potential problems that may occur.

MS. STRICKHOUSER: But it might take forever and ever and all the time you are deciding anything can happen that is unknown, that you or any of the workers would even know about.

MR. COLLINS: Certainly we would know about it, but you are right, there are mechanical failures that could occur and the plant will deteriorate with time. Any piece

of equipment if it is not maintained is going to deteriorate.

MS. STRICKHOUSER: What I mean is you are pussyfooting around deciding what to do, how to do it and anything can happen in between until it is accomplished, the clean-up is accomplished. There is fear in the public. You would be surprised how much fear there is in the public where they won't talk up until this is cleaned up. It is really fear.

MR. COLLINS: On the other hand, there are members of the public who are trying to delay the clean-up, too. So, on the one hand, you have people like yourself who would like to see it cleaned up as safely and as quickly as possible, but there are other people who would have it delayed, too.

MS. STRICKHOUSER: There will always be fear there until it is completely whatever.

MR. COLLINS: And I certainly recognize it.

MS. SMITH: In relation to what she says, first of all let me ask you, do you know anything of why the NRC is delaying a decision on the psychological contention?

MR. COLLINS: On TMI-1?

MS. SMITH: On the restart.

MR. COLLINS: On the restart? I have no idea why the NRC Commissioners are delaying the restart on TMI-1. It is psychological question.

MS. SMITH: Like she said, there is fear and we know it can be reduced. How can they say the psychological stress is going to come down, down, down.

MS. STRICKHOUSER: It is going up.

MS. SMITH: Each time they do something we are worried, including all of us who are still wondering who is going to come down with leukemia or cancer.

MR. COLLINS: I don't think we discounted the question of psychological stress. What we concluded was that high-level stress have been relieved. We did acknolwedge that there will be low-level stress continuing throughout the whole clean-up. We acknowledge that.

MS. SMITH: Who decided it was going to be low-level?

MR. COLLINS: Our consultants together with our staff made that conclusion.

MS. SMITH: But they never came up to talk to us. Remember we talked about that when we came to D. C.? I think Peter Bradford didn't appreciate either that it went on the record about not talking to us.

MR. COLLINS: I think there is the stress there, Pat. I never said that there wasn't. But I do believe, and I have seen a difference in the area since the krypton has been vented and I don't see the amount of stress that existed prior to the venting question now. I do not see

it. I am not saying it isn't there,. but it is not nearly as paramount as it was before the krypton was vented.

MS. SMITH: One more thing.

MR. COLLINS: Let me tell you why I say that. Prior to the venting question and almost to the last year, and you know that, too, because you have been there, my office used to be very, very busy. The phones used to ring constantly. I used to spend at least a good part of my day doing nothing with my secretary but talking to the public. I can venture to say since the venting the number of telephone calls that we now receive are very, very small. In fact, if I get a half a dozen in a week I am lucky any more.

MS. SMITH: I feel we have been had thanks to Mr. Bernard Snyder soliciting those extra letters. We feel we have been had and it is like hopeless. We have been had.

MR. COLLINS: Well, I think that a large amount of stress has been relieved. I think there is going to continue to be stress until that plant is cleaned up. We acknowledge that.

MS. STRICKHOUSER: My son came to our house many a time from the city. He said, I would love to drink your ice-cold well water. It is really cool and fresh. Now he doesn't know if he wants to come up and get any more well water. We are not too far away from the Three Mile Island.

MR. HATTERER: The majority of them are contaminated.

MS. UMHOLTZ: Maybe you could clarify something for me. Throughout the 18 months I have been basically concerned about my exposure to this radiation, but throughout these months I have been told by various people that it is either a comparison to an X-ray or it is within normal background levels or it is slightly above background levels which is not harmful or any cause for concern for public health.

On the other hand, they are coming up with risks, 2.2 in 10 million and 4.2 in 10 million for genetic. If I am not getting affected in any way by this how can you come up with risks? It doesn't make any sense to me. There should be no risks then, but you are coming up with risks.

MR. COLLINS: That is not right. There was always a risk of exposure to even small amounts of radiation.

Tom, would you like to expand on it.

MR. GERUSKY: You are doing well.

(Laughter.)

MR. SNYDER: I don't think anyone has said zero risk.

MR. COLLINS: There is no such thing as zero risk.

MR. SNYDER: It is no more zero risk than my driving up here tonight.

MS. UMHOLTZ: You told us the risk to that vehicle passing by---

MR. SNYDER: We clarified the risk.

MS. UMHOLTZ: --- the normal background, dose standard.

MR. COLLINS: Even the background gives you a risk of receiving cancer due to natural background radiation. We live with it all the time.

MS. UMHOLTZ: What I am saying to you is I don't feel that I live with that all the time. I feel that is being increased because of this accident. There has got to be an increase.

MR. SNYDER: But what is the increment increase? That is the question. The chances of any of us in the room dying from cancer is one in five. I think that is scarey as hell.

MS. STRICKHOUSER: Do you live in this area?

MR. SNYDER: No, I don't. I am just saying that across the United States the chances are one in five of any of us in this room dying of cancer. I think that is pretty scarey in itself. We are all going to go one way or another and one in five will go that way.

MS. UMHOLTZ: But there is an increase now.

MR. SNYDER: Now, the increase, the incremental increase is of the other of a probability of 2 parts in ten

million, as I recall the numbers.

MS. UMHOLTZ: There is an additional risk so you really can't go around making statements that we are within normal background levels of radiation.

MR. COLLINS: Oh, yes, we can. That is a true statement.

MR. UMHOLTZ: Well, then, it has to be a fluctuating background level.

MR. SNYDER: Oh, it does fluctuate. It varies by a factor of two I think.

MR. UMHOLTZ: I think that you should clarify that because people are getting the impression that normal background. Even during our monitoring within Newberry Township we were picking up on an average 35 ---

MR. COLLINS: But that varies.

MR. UMHOLTZ: But I would be the only one to know that because I was involved in that monitoring system. So people are under the impression then that with normal background there is no risks. You did make a statement earlier that although there are slight increases in normal background radiation there are no health risks, but yet the risk factor says that there are. So it is not making sense.

MR. COLLINS: I don't think I said no health risks.

MR. UMHOLTZ: I am writing down what you said.

MR. COLLINS: It was on one of the charts.

MR. GERUSKY: No environmental effects.

MR. McKAY: What is the percent of background radiation increase since 1972 prior to the plant being opened than to when TMI Unit No.-1 and then TMI Unit-2 when off?

MR. COLLINS: There hasn't been ---

MR. McKAY: There hasn't been a study?

MR. COLLINS: There hasn't been an increase.

MR. McKAY: In four years you haven't measured it, right?

MR. GERUSKY: We have been measuring it for a long time. It hasn't gone up.

MR. COLLINS: Prior to Unit 2 and Unit 1 going into operation there was a preoperational monitoring program. They are required prior to all operating plants.

MR. SNYDER: That is a small part of a total picture of preopeational monitoring. That is just one area of survey. It can vary from day to day as they do again.

MR. McKAY: Then who is going to be responsible for taking surveys since the accident has occurred to see what the increase is since March 28th, 1979?

MR. SNYDER: The main responsibility for that for the Federal Government is the Environmental Protection Agency which is totally independent of the NRC. Tom's organization has the state responsibility for that.

MR. McKAY: Now, does the state, Tom, conduct the extensive surveys -- (inaudible)

MR. GERUSKY: They only have two claims for the whole United States.

MR. McKAY: So the great, wonderful Federal Government can solve everybody else's problem and not supply enough aircraft and equipment to conduct a survey out here for a 50-mile radius to see what the background radiation increase has been since the accident. I am getting a little bit upset.

MR. GERUSKY: If we thought at all that there would be anything positive on that we would have asked them and it should have been a long time ago. I have no reason to call them but I have no reason not to. If they are willing to come in and spend their money to do the survey, I will write a letter and ask them to come in and do the survey.

MR. McKAY: It sure would help.

MR. GERUSKY: I am not sure it is going to mean anything but I will ask them to come in. I understand what you are trying to do Brian and you may have to do it in a different way. A document on radiation isn't going to be significant. You have to check levels of contamination in the ground, in the water, in food and so forth and not just the external radiation.

MR. McKAY: I mean, it is going to continue with the dust over a period of time.

MR. GERUSKY: The contamination levels may build up if there are continual releases from the plant, but the external radiation levels you see aren't going to build up. The sensitivity to the system is so small that you are going to see a change and the variation in the counting system is such that you can't do it. You can't use the kind of a system that was set up ahead of time. That preoperational survey is fine for looking at a major accident where a heck of a lot of fission products got out, where particulate activity got out, Strontium-90 and everything else got out, and cesium, and then you can go back and compare because then you have got a source of radiation. There isn't any.

MR. COLLINS: Sometime, Brian, you might want to drop in my office and there is a book that published by the National Council on Radiation Protection, and I am not sure if it is 40 or 45, that discusses natural background radiation in the United States. You might want to read that and it might give you a little bit more insight.

MR. GERUSKY: It does show how there have been increases from man-made activities.

MS. UMHOLTZ: You haven't answered my question yet.

MR. COLLINS: And your question is?

MS. UMHOLTZ: Why would there be an increase then

in the risks and there really should not be? If there is increased radiation and it is still within background levels or slightly above then there should be still no increase in risk.

MR. SNYDER: We used background levels because background levels are something that people are living with day in and day out and people can relate to that by saying, okay, this is what I normally get by just living in this area or any area. When I tried the first day to tell the people there were three chest X-rays I ran into trouble because nobody understood what it was. I mean, that was a mistake. I think that we should have used what people are routinely exposed to and that is the natural background.

Now, that is to tell them what that little increment of exposure is in comparison to what they get daily. We are not saying that there is no risk associated with that increase. There is a very slight increase according to the recent Beer Reports of any increase in radiation exposure. We used the linear equations although the linear quadratic was used there and that would even make it less of a risk. We are using the linear equation, and that assumes that for every increment of radition exposure there is an increased risk of disease. That is all we can say.

What John has said is that 1.6 millirem give you this increased risk. The basic risk is one in five and the increased risk is two in 10 million or whatever the number was.

MS. UMHOLTZ: So the bottom line to me then is that relative to the accident that there is definitely is a probability of a additional cancer.

MR. GERUSKY: Sure, and that was said in the report.

MS. UMHOLTZ: I don't want to be that additional case.

MR. GERUSKY: That was said in the report of the ad hoc committee after the accident and it varies now between a half and two or three or four additional cancer deaths as a result of the accident at Three Mile Island for the population out to 50 miles out of the total cancer deaths of 255,000. I am sorry, [illegible] million people; 255,000 cancer deaths per year.

MR. SNYDER: Could I put it in a little different perspective. I think this building is probably made out of cinderblock. I think if you live in a house and you would have been home tonight watching the ball game perhaps if this weren't going on and assuming your house is wood framed you expose yourself to a greater risk by sitting in this room.

MS. UMHOLTZ: But I am exposing myself to a greater risk because of the accident.

MR. GERUSKY: You are also increased because of being here.

MS. UMHOLTZ: (Inaudible due to many people speaking at once.)

MR. SNYDER: I tried to put it in perspective. We are talking in similar terms.

MS. UMHOLTZ: It is not clear. It is just a lot of mumbo-jumbo because you are saying there is no increase but yet there is an increase in risk. There can't be.

MR. GERUSKY: We didn't say there was no increase.

MR. SNYDER: There is an increase in radiation level and there is an increase in risk. The question is how much, and we are saying it is damn small.

MS. UMHOLTZ: You don't know that either. You are assuming.

MR. SNYDER: Pardon me?

MS. UMHOLTZ: You are assuming.

MR. SNYDER: We are not assuming anything. Tom made reference to the Beer Report. That is the National Academy of Sciences report that has been updated recently and we use their correlations between cancer deaths and radiation. That is where the two in 10 million comes from. It is very simply arithmetic.

MR. UMHOLTZ: It is not that simply, though. I don't think that you can justify a person's death because of that accident, a man-made accident.

MR. GERUSKY: We are trying to say what the deaths are going to be.

MR. COLLINS: We are trying to say that the plant has to be cleaned up and as a result of cleaning up the plant ---

MS. UMHOLTZ: At the risk of causing 2.2 in 10 million more cancer deaths. I agree with you, too, that it has to be cleaned up. I mean, I am deathly afraid of going to work because when I go to work I am closer to the plant. I am 5.1 miles away from it and that doesn't make me feel any safer.

MR. COLLINS: What would you propose?

MS. UMHOLTZ: You tell me.

MR. COLLINS: No. I can't. We have gone through the evaluation and we are saying this is what the cumulative dose for the maximum individuals off site will be. As a result of that does you could have an additional 2.2 cancer deaths in 10 million.

MS. UMHOLTZ: It seems you are playing God.

MR. COLLINS: I am not playing God. I have to tell you that the plant has to be cleaned up.

MS UMHOLTZ: At the risk of causing that much more

cancer deaths.

MR. SNYDER: There is a much greater risk if you don't clean it up.

MR. COLLINS: The risk is much greater is you don't clean it up. The risk is much greater?

MR. McKAY: But how can you justify it? You are so concerned about the safety of the people in the area yet you released that into the atmosphere. The NRC permitted you to vent the gas instead of going to another process. How can you go ahead and vent it and contribute this factor in the cancer deaths rather than going through the process and reducing the risk and instead of adding 2.2 cancer deaths reducing 2.2 cancer deaths. Why didn't you go to another system to remove the krypton instead of just venting it into the atmosphere?

MR. COLLINS: Because when you weigh all of the other systems that were available and the time element to put them in the risk that may have occurred even from operation of those the health effect that could be realized from venting the krypton was very small and it was felt that it was better to vent that over a short period of time rather than put in a system that may take a number of years to put it in during which time the plant could develop problems which could result in more serious releases than could have occurred at this point.

This was a controlled release. Ask youself a question, Brian. Is it better to have a controlled release or an accidental release that is uncontrollable?

MR. McKAY: What I am saying is that there was such a damn rush to get in there and see what the heck was going on because they were all worried about the air conditioning system breaking down and more problem occurring, and there hasn't been one other major substantial step towards that clean up inside that reactor building.

MR. COLLINS: Oh, I disagree with you.

MR. McKAY: How about the core, when you take the lid off the core?

MR. COLLINS: Oh, we are a long way from taking the lid off the core.

MR. SNYDER: We are years from that.

MR. COLLINS: The fact that you don't physically see any progress being made does not say that no progress is being made.

MR. McKAY: You gave the example that you are reusing the water from the auxiliary building in the clean-up process. What I would like to know is if it is going to take five to seven years for the total decontamination of the plant what is it going to be the volume of waste produced that has to be stored on site or removed?

MR. SNYDER: Those number were in the PEIS. I can't quote them for you, but there is a table.

MR. McKAY: Right, but can you tell me what state is going to take it?

MR. SNYDER: Pardon me?

MR. McKAY: Can you tell me who is going to take it?

MR. COLLINS: Right now the waste is being shipped to Richland, Washington.

MR. McKAY: Well, that could change.

MR. COLLINS: Yes. If it changes then it is going to have to be disposed of at some other site then.

MR. McKAY: Now, what about the high radioactive waste on the resins which are being stored down here on the island at the present time? What is the estimated time in effect for leaching to occur with the storage of that type of resin?

MR. COLLINS: What is the life, you mean if it leaches?

MR. McKAY: What is the minimum time expected that damage will be incurred by the leaching effect of the type of resin storage that is contained at Three Mile Island?

MR. COLLINS: You recognize that the resin is inside of a steel liner and that steel liner sits inside a concrete slade with a three and a half foot shield block

over it which is drained through a sump and we monitor the sump.

MR. McKAY: That is the same type of system but in a larger degree where they seaked 125,000 ---

MR. COLLINS: You are talking about two different things, Brian.

MR. COLLINS: They were in carbon steel tanks.

MR. SNYDER: They had been sitting there for about 20 years or more.

MR. COLLINS: They were never designed for this. Even if they did leak it did not represent any health and safety problems that we know of at this time.

MR. UMHOLTZ: Let me interrupt. We do have another speaker. If there are one or two more questions we will take them and then we certainly invite you to stay. We think it would be to your advantage to hear our next speaker.

MS. HERMAN: I would like to ask Mr. Snyder. You asked for public comment on the venting of the krypton.

MR. SNYDER: Yes.

MS. HERMAN: Now you are asking for comments from the public again. I know before most of the comments opposed the venting and you went ahead and vented the krypton. What will these meetings and the comments made by the people, what effect do they have upon the decision that

will be made?

MR. SNYDER: Well, I think that they have very considerably effect. Let me explain first what happens to your comments both given here orally and the ones that we expect to receive in writing.

First of all, we have received perhaps as many as a thousand or more comment letters each perhaps containing two or three comments. So we are talking on the order or two or three thousand comments.

We have set up our organization to be able to handle those. We will analyze the comments. In fact, we just had a meeting today on this subject. We have a team set up to go through every one of those comment letters and select out the comments that are substantial, you know, true comments. We will analyze those. They will be factored into the final document. They will be published as an appendix to the final document. I can assure you that they will have significant impact. They have already.

Let me make it clear. One of the things that we are well aware of is that people are extremely concerned about releasing the processed water. This is after it is cleaned up. Although it could be released under existing regulations we entered into an agreement not to do that. It is clear in my mind, you know, that that is a paramount question in here. For that reason we have undertaken a

number of additional studies already to take a look at what our real viable alternatives are to get it done in a reasonable amount of time.

Something has to be done with that water. I don't think leaving it on the island in tanks is a good idea personally. We are looking very hard at various other things besides diluting it and letting it go down the river which is done normally at most power plants.

I select that as a particularly pertinent example because I know people in the area are very concerned about that. That is the kind of impact that you had on the process and we expect that you will have continuing impact on it.

MS. HERMAN: With the krypton venting the majority of public opinion was opposing the venting.

MR. SNYDER: I guess the decision-makers took a vote on everything and put everything to a referendum. I am not sure that the system worked. If you want to oppose a referendum as to what to do, I guess that is your privilege.

MS. HERMAN: I have anoter question. Something I can't understand is you tell us how much we have received of radiation since the time of the accident.

MR. SNYDER: Yes.

MS. HERMAN: It is like it is spread out and given to us evenly when we know darn well that that didn't

happen. Some people got a higher amount. I think your figures on cancer risk are wrong.

MR. SNYDER: Well, they are not our figures, first of all. We don't make those kinds of calculations, or the bases for those figures are not ours. Tom is better able to explain this because this is his field and not mine. But the National Academy of Sciences has the standing committee that continually reviews the effects of radiation on humans, what are the medical effects. Just recently they revised downward in fact their estimates as to what a unit of radiation will do in terms of health effects.

In fact, those numbers that you saw, that 2 in 10 million are based on higher estimates than previously had been published and they subsequently have been revised downward. But the numbers are small enough that it doens't make that much difference anyhow.

What I am saying is that we used their current estimates, and it is not ours but theirs. This is a collection of the best scientific minds on the subject and it includes people throughout the United States and there are international committees that look at this thing, too. They are people that make it their profession and life work to study this very important subject. We rely on them. I don't know of anybody better to go to on that subject.

MR. CMHOLTZ: We are going to have to cut it off

now. I am sorry.

MS. LEE: He sits there and talks the subject to death.

MS. UMHOLTZ: We have another speaker, Jane.

MS. LEE: Just let me get something on the record, please. It is important.

MS. UMHOLTZ: You have two minutes.

MS. LEE: Can you clarify the contamination of the employee on site that was contaminated in the exercise for decontamination of employees?

MR. COLLINS: Yes. They were running an emergency medical drill.

MS. LEE: Right.

MR. COLLINS: He received or he had slight contamination on his plastic bootee.

MS. LEE: In a restricted or unrestricted zone?

MR. COLLINS: It was in a restricted area.

MS. LEE: On the record I want a specific request placed before the EPA and the NRC that every single person that goes in and off of that island from here on out is monitored.

VOICE: Amen.

MR. COLLINS: You certainly may make that recommendation, Jane. I have told you before my reasons as to why we will not impose that and why it is not necessary.

Your recommendation is on the record.

MS. LEE: I want it to go to Washington.

MR. COLLINS: You certainly may have it go to Washington.

MS. LEE: If any more contamination comes off of that island and people are contaminated I want it on the record that that specifically was requested. That is all I have got to say. There is no use in going into this garbage.

MS. UNHOLTZ: We want to thank all of you for being here.

MR. COLLINS: Thank you very much.

(Whereupon, at 9:30 p.m., the public meeting concluded.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

In the matter of: METROPOLITAN EDISON COMPANY(TMI UNIT II)

Date of Proceeding: October 8, 1980

Docket Number: 50-320

Place of Proceeding: NewBerry Township, Pa.

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

Mary C. Simons

Official Reporter (Typed)

Mary C Simons

Official Reporter (Signature)