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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

PUBLIC MEETING  
CLEAN-UP ON TMI UNIT II

Auditorium  
City College of Baltimore  
3220 The Alameda  
Baltimore, Maryland

Monday, November 17, 1980

The public meeting convened 7:45 p.m., pursuant to  
notice.

BEFORE:

- JIM CAWOOD, Moderator
- BERNARD SNYDER, Director, TMI Program Office, NRC
- OLIVER LYNCH, Section Leader, Environmental Review Section, TMIPO
- CLARENCE HICKEY, Fisheries Biologist, NRC
- PAUL LEECH, Environmental Project Manager, TMIPO
- LAKE BARRETT, Deputy Program Director-Designate, TMIPO
- MATTHEW BILLS, Associate Deputy Assistant Administrator, EPA

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C O N T E N T S

PRESENTATION OF:

PAGE

Bernard Snyder,  
Director, Three Mile Island  
Program Office

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COMMENTS OF:

Senator Paul A. Sarbanes,  
--as presented by--  
Bruce Gilmore,  
Special Assistant to Senator Sarbanes

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PROCEEDINGS

1

MR. CAWOOD: Good evening.

3 If I could have your attention for a moment. This  
4 is the third meeting in Maryland to discuss the Draft  
5 Programmatic Environmental Impact Statement on Three Mile  
6 Island. We certainly welcome you here on a very bad night.

7 My name is Jim Cawood. I am a private attorney in  
8 the State of Maryland. I am also the Chairman of the Power  
9 Plant Siting Advisory Committee which advises the Power  
10 Plant Siting Program and the Department of Natural Resources  
11 of the State of Maryland.

12 My purpose here tonight, as it has been for the  
13 past two meetings, is fundamentally a simple one. It is my  
14 job to run the meeting, to make sure that you have a fair  
15 chance to ask your questions and make your comments and that  
16 the NRC has a fair chance to answer them with which we have  
17 had little problem so far.

18 I am not an employee nor have I ever been an  
19 employee of the Nuclear Regulatory Commission nor will I be  
20 answering any of the questions tonight except perhaps on a  
21 very limited basis. I am not a scientist.

22 Now, the program tonight will, of course, concern  
23 this document which some of you may have, the Programmatic  
24 Environmental Statement. There are handouts in the back of  
25 the room. If you have not gotten one, it might be well

1 while I am talking preliminarily to get one. We have a blue  
2 one and a yellow one, questions and answers and a summary of  
3 the entire matter, which will be helpful to you if you have  
4 not read it.

5           The format tonight will go roughly like this. The  
6 Nuclear Regulatory Commission will make a presentation which  
7 will be approximately thirty to forty minutes long by past  
8 experience. They will simply try to summarize the report  
9 and lay the background and use a few slides here.

10           After that program the remainder of the time, and  
11 we hope to end at approximately 10:30, will be devoted to  
12 comments and questions from the audience that the NRC will  
13 answer and comment on.

14           Now, this is all taped so you are asked when you  
15 ask the question to come up to the microphone which is  
16 directly in front of me. We ask you to please speak into  
17 and we ask you to give your name. If you remember it the  
18 reporter would like you to spell your name. We also ask you  
19 to identify, if you will, any specific connections,  
20 expertise or the like which you have.

21           I will permit within reason for you to follow up  
22 your questions as much as you like. You are not going to be  
23 cut off strictly at one question. Again, give respect to  
24 the size of the audience in the number of questions to be  
25 asked.

1           We are particularly anxious to hear from those who  
2 have not attended the prior two meetings or have not had a  
3 chance to speak before so that we can hear your questions.  
4 They will be recorded and that transcript will be available.

5           Now, there are a few things that the meeting does  
6 not concern. It is, as I said, concerned with cleaning up  
7 Three Mile Island. It is not concerned with the question of  
8 nuclear power itself which is certainly a fascinating and  
9 difficult question. That is not what we are here for  
10 tonight. It is not concerned with what caused the accident  
11 at Three Mile Island. That has been covered elsewhere.

12           The simple question is, now that there is a bad  
13 situation there what does one do about it?

14           At this point I wish to introduce the prime  
15 speaker who will subsequently introduce his colleagues from  
16 the NRC and the EPA, Dr. Bernard Snyder, who is the Director  
17 of the Three Mile Island Program Office for the Nuclear  
18 Regulatory Commission.

19           Dr. Snyder.

20           PRESENTATION OF BERNARD SNYDER, DIRECTOR,  
21           THREE MILE ISLAND PROGRAM OFFICE

22           MR. SNYDER: Thank you, Jim.

23           As Jim mentioned, we are recording the meeting as  
24 you can see down here on my right. We do have a court  
25 reporter. The transcripts will be available in typed form

1 in a week or so, a week to a week and a half, at a local  
2 public document room that NRC maintains here in Baltimore at  
3 the Enoch Pratt Free Library, the Central Library at 400  
4 Cathedral Street and I am told it is in the Business,  
5 Science and Technology Department. There will be five  
6 copies there, one of which would stay and four would be  
7 available on loan.

8           The purpose in taking these transcripts is to be  
9 sure that the NRC has a good record of what was said at the  
10 meeting, what your comments are and what your concerns are.  
11 We will treat these comments as though they were written and  
12 forwarded to us formally. You can be assured that we have a  
13 staff of people who are devoting essentially full time to  
14 the analysis of the comments from this meeting and the 30  
15 other meetings that we have had, most of which have been  
16 similar to this.

17           The transcripts, if you so desire, we would be  
18 willing to provide you with your own copy, and we would also  
19 be willing to provide you with copies, say, of the other  
20 meetings that we have held in Maryland or of any of the  
21 meetings that we have held up near the plant in the  
22 Harrisburg, Pennsylvania, area.

23           The booklets that you find in the back of the room  
24 that I think some of you have picked up now were prepared  
25 especially for the public, recognizing that the PEIS

1 document is thick, complicated and filled with much  
2 technical jargon somewhat of necessity.

3           What we have is taken the most frequently asked  
4 questions that have been posed to us at meetings similar to  
5 this and attempted to give a somewhat simplified answer to  
6 those in the blue bound document. The white document is  
7 just an excerpt from the PEIS itself giving the summary and  
8 the conclusions.

9           I will try to go through what we have put together  
10 as an introductory formal presentation fairly quickly so as  
11 to allow you adequate time, especially for those of you who  
12 have come here tonight in such poor weather. I am glad to  
13 see that we did have a good turnout.

14           Before I do that, I would like to introduce the  
15 people that are up here with me.

16           Starting from my right to your left is Oliver  
17 Lynch who is the Section Leader of the Three Mile Island  
18 Program Office in NRC Headquarters.

19           Next to him is Clarence Hickey who is a fisheries  
20 biologist in the NRC.

21           Seated next to him is Mat Bills who is the Senior  
22 EPA man associated with and following the clean up of Three  
23 Mile Island.

24           Behind me to Mat's left is Lake Barrett. Lake has  
25 just recently been assigned as the new Deputy Program

1 Director for the Three Mile Island Program Office. He will  
2 be stationed at the site replacing the individual who is  
3 there now. That transition is in process now and by the end  
4 of the week Lake will be our full-time representative there.

5 I would like to mention a little bit about our  
6 organization so that you can appreciate how NRC is staffed  
7 for this. A Program Office has been established since April  
8 of this year. I am the Director. I have about 15 people  
9 working for me, 15 professionals working under my direction  
10 in NRC headquarters at Bethesda, Maryland.

11 In addition, we have an office that has both the  
12 licensing review function and the inspection and enforcement  
13 function at the site. That office is also under my  
14 direction, but they would immediately be reporting to Mr.  
15 Barrett here. There are about 20 people in that office. So  
16 there is a total professional staff of about 35 people.

17 It is a unique organization especially created for  
18 the situation at Three Mile Island and we have very close  
19 and direct communication with the top management in our  
20 organization. I report directly to Harold Denton, for  
21 example.

22 (Slide presentation.)

23 Let me go on with the slide presentation that we  
24 have put together for you tonight and I will try to move  
25 along quickly and then we will be glad to take your  
questions.



1           After I have given my portion, Clarence Hickey  
2 will speak briefly and then Oliver Lynch will speak.

3           You are at an advantage and I am not, I can't see  
4 the screen, but I will assume we are well coordinated.

5           I am sorry, I failed again to mention that we have  
6 another very distinguished member of our staff seated in the  
7 audience. He normally has a much more responsible job than  
8 running slide projectors, but Paul Leech who is the  
9 Environmental Project Manager responsible for the  
10 preparation of the docket for me is seated down here.

11           The purpose of the statement is to assist the NRC  
12 in carrying out its responsibilities under the Atomic Energy  
13 Act. Those responsibilities are basically ones of public  
14 health and safety. That is our primary concern as the  
15 decontamination progresses.

16           In addition, under the National Environmental  
17 Policy Act we do have a responsibility to engage the public  
18 in the decision-making process. The PEIS, the draft, is one  
19 of the mechanisms to engage the public in that process.

20           The document does focus on the environmental  
21 issues and alternatives before commitments will be made to  
22 specific clean-up activities.

23           The programmatic statement provides an overall  
24 evaluation of the environmental impacts that are anticipated  
25 to result from the decontamination and the disposition of

1 the radioactive waste from the March 28th, '79, accident at  
2 Three Mile Island.

3           It does provide descriptions of proposed clean-up  
4 activities and it gives a schedule for their completion. I  
5 would like to comment for a moment on the schedule.

6           The schedule was current as of the time the  
7 document was published, which was early August. The current  
8 schedule that the licensee has just provided us this week  
9 does indicate some extension from that which you have seen  
10 in the document as a result of financial difficulties that  
11 the licensee has run into.

12           So in the final document we will reflect our own  
13 assessment of his schedule, and I am anticipating that it  
14 will be somewhat longer than what we are currently showing.

15           The descriptions of the alternative methods for  
16 accomplishing the principal activities in the environmental  
17 impact assessments of those methods are given in the  
18 document. We have considered basically those methods which  
19 we consider to be feasible.

20           I would like to point out what the statement does  
21 not cover. First of all, it doesn't talk about the accident  
22 itself in March of '79 and the environmental effects of that  
23 accident.

24           I think most of you are probably familiar with the  
25 fact that that has been well recorded by a number of

1 independent organizations independent of the NRC, the most  
2 famous of which was the Presidential Panel set up by  
3 President Carter and headed by Dr. Kemeny, the President of  
4 Dartmouth College. The report is available and I am sure  
5 you can find it in your local library. So we haven't gotten  
6 into the accident itself. We are taking it from that point  
7 now.

8           The statement also does not cover what is the  
9 ultimate disposition of the plant, that is whether the plant  
10 is decommissioned or whether it is restored to a condition  
11 acceptable for licensed operation.

12           The reason that we haven't covered that in any  
13 great depth, and there is some mention of it in one of the  
14 alternatives, but it is certainly not covered in any great  
15 depth, the reason for that basically is that from our  
16 perspective the ultimate disposition of the plant is a  
17 future decision.

18           Also we should recognize that whether the plant  
19 operates or not, it needs to be cleaned up. It can't just  
20 sit there the way it is.

21           The statement does not cover specific  
22 recommendations. That has been a source of some confusion  
23 on the part of many at these meetings. I will try to  
24 explain that.

25           Basically what our charter was in preparing this

1 document was to examine all feasible alternatives and not  
2 present to our Commissioners specific recommendations for  
3 carrying out any given activity. In other words, the  
4 document is not biased toward any given solutions. We have  
5 tried to take an open and objective view in reviewing what  
6 all the possible methods of approaching any one of the major  
7 clean-up activities.

8           The document, although it doesn't contain  
9 decisions itself, will be part of the decision-making  
10 process. What we have done is attempted to scope the  
11 environmental impacts of each activity. For example, in  
12 some situations we have looked at best case/worst case  
13 situations because we don't know the condition of the core.

14           If we haven't adequately scoped the possible  
15 environmental effects as time goes on and as the project and  
16 the clean-up progresses, then we will be issuing supplements  
17 to the document. Those will be available in a similar  
18 manner to the public for comment.

19           I would like to talk about the schedule for the  
20 final document, recognizing that the one we are here talking  
21 about is a draft.

22           The first item on the list, November '79, was the  
23 starting point basically. The Commission directed the staff  
24 to prepare a document at that point and that was done with  
25 the advice and in part under the suggestion from the CEQ,

1 Council on Environmental Quality.

2 We did complete the draft in late July and it was  
3 available to the public formally on the 22nd of August.  
4 Actually it was distributed somewhat before that on the 14th  
5 of August. We extended the comment period to 90 days and  
6 the comment period ends on Thursday, the 20th of November.

7 During the period November 20th to the end of  
8 February we will be working hard to try to incorporate  
9 suggestions that have been made and take into account the  
10 comments that we have received and update the information  
11 that is in there. A lot has happened since we did the  
12 original work on the document in terms of data on the plant,  
13 for example.

14 We will be providing to the NRC Commissioners who  
15 are separate from the staff at the end of February a final  
16 document for their review. Assuming that the Commission has  
17 no first-order problems with the document, the final  
18 statement we expect to be out on the 23rd of March.

19 I would like to briefly touch on some of the major  
20 conclusions. These aren't all the conclusions, but I think  
21 these are the ones that are of primary interest to most  
22 people. All of the conclusions, of course, are given in the  
23 statement and all of these are draft conclusions subject to  
24 change when we complete the final document.

25 One of the major questions that is asked is what

1 would be the effect on the public of the clean-up? We have  
2 taken a look at that question. One way to do that is to  
3 consider what would be the effect on an individual who  
4 stands for the whole period of time, 24 hours a day, at the  
5 site boundary. We call that person the maximally exposed  
6 individual. Obviously it is a hypothetical case. It is the  
7 worst case to an individual.

8           If there were such an individual standing there  
9 for the years that the clean was going to take, the exposure  
10 that that individual would get would be about 1.6  
11 millirems. Now, you can translate that into what is the  
12 risk of cancer. It is not zero, but there is a very small  
13 risk. The conventionally accepted conversion for low-level  
14 radiation coming from the National Academy of Sciences'  
15 studies on this subject put the risk at about two in ten  
16 million.

17           Now, that sounds like to some people maybe it is a  
18 lot, but you have to put that in perspective. Everyone in  
19 this room has a chance of one in five in dying from cancer.  
20 That is the statistics in the United States.

21           Another way to look at it is that 1.6 millirems,  
22 what does that do to the future generations? Well, again,  
23 we have taken a look at the normally accepted conversion  
24 from low-level radiation that the National Academy of  
25 Sciences has promulgated as being the best scientific

1 evidence, and the risk of genetic effects appear to be about  
2 four in ten million compared to normally occurring incidents  
3 of genetic effects of one in seventeen. So it is four in  
4 ten million versus one in seventeen. That is for an  
5 individual who stands at the site boundary for five to seven  
6 to eight years 24 hours a day, and that individual would get  
7 about 1.6 millirems.

8 Another way to look at that off-site release,  
9 total cumulative off-site release, is to say, well, how  
10 about the people within reasonable distances of the plant,  
11 what is the person-rem? In other words, what is the  
12 radiation to those people times the number of people, which  
13 is what person-rem connotes, what would that be?

14 Well, we have arbitrarily taken a 50-mile radius  
15 around the plant. You could argue whether that ought to be  
16 a hundred, two hundred or five miles. The consequences of  
17 it are not highly dependent on how far out you go.

18 Now, there are a large number of people in that 50  
19 miles. There are over two million people and it includes  
20 the City of Harrisburg, for example. If you do the analysis  
21 as we have done and we have presented in the PEIS, out to 50  
22 miles the total person-rem dose would be six. Six  
23 person-rem would be the total dose.

24 That same population from natural background that  
25 is with them day in and day out that they cannot avoid, the

1 natural background in that area, for example, is about what  
2 it is in this area, something over a hundred millirems per  
3 year, for one year if you take the number of people exposed  
4 to that background it works out to be 255,000 person-rem.  
5 If you take a look at that over five to seven years the  
6 total person-rem background dose is 1.3 to 1.8 million-  
7 person-rem. That is to be compared with six.

8           So even if we are off by a factor of ten or a  
9 hundred or even a thousand, and I don't think we are because  
10 we have always erred on the high side, we have taken the  
11 conservative numbers on every point of the analysis which is  
12 given in the PEIS, even if we are off, even if we are wrong  
13 by those factors, and I doubt that we are, the relative risk  
14 involved compared to the normal risk that we have every day  
15 in our lives is very, very small. It is not zero, however.

16           Another way to look at the health effects is on  
17 the next slide. We have this up here because there is  
18 concern about transportation. Now, this area in all  
19 likelihood will not see any shipments of radioactive  
20 materials from the Three Mile Island site.

21           For those people that are along the route, and we  
22 analyzed the route going out to the State of Washington, and  
23 along that route there are about 700,000 people along a  
24 2,300 mile distance, if any individual were to stand for  
25 three miles at three feet from the truck, a typical



1 truck-load, might get a dose of up to 1.3 millirems. Now,  
2 anyone that stands next to a truck that is placarded that  
3 says radiation, you know, ought to be thinking twice before  
4 that do that, first of all. If you are concerned about  
5 low-level dose, I wouldn't recommend anyone doing that.

6           But even if they were, it is comparable to that  
7 person who stands for the life of the clean-up operation at  
8 the site boundary. If you take a look at the person-rem  
9 exposure and consider the variation in estimate that we have  
10 made of the volume of shipments, and there is quite a range,  
11 a factor of almost three, the cumulative population dose  
12 runs between 26 and 66 person-rem for all of the shipments,  
13 including the fuel.

14           Next slide, please.

15           The most significant of the health effects will be  
16 seen by the workers. They are in there doing their job.  
17 They will be exposed, and our estimates are probably high,  
18 but they will be exposed to between 2,700 and 12,000  
19 person-rem for the entire clean-up operation. Much of that  
20 comes from the clean-up of the containment building itself.  
21 The entries that have been made in the containment building  
22 since we made that estimate and there was one last week in  
23 which 12 people entered the containment building and there  
24 have been three others prior to that. Based on that fairly  
25 sketchy information, but it seems to be consistent now with

1 all the entries that have been made, the radiation levels  
2 that we estimated for inside the containment building are  
3 significantly higher than the numbers that were used to  
4 arrive at these person-rem doses.

5 In other words, even over the range of 2,700 to  
6 12,000 person-rem we are probably quite high. We are  
7 looking at that right now and we will revise that  
8 appropriately for the final document.

9 Now, assuming these high numbers, the health  
10 effects corresponding to these doses run from three-tenths  
11 to 1.6 additional deaths due to cancer and seven-tenths to  
12 three additional genetic effects.

13 Now, it sounds like when you get up to whole  
14 numbers of 1.6, say, or three that this is a tremendous  
15 effect. But again, you have to keep it in perspective. The  
16 perspective I would suggest you look at is the number of  
17 people that will be involved in the clean-up over whom this  
18 person-rem dose will be distributed.

19 We estimate, and the licensee has agreed that our  
20 estimates are reasonable, that there may be as many as 2,500  
21 and certainly 2,000 workers involved in the clean-up  
22 activity.

23 Now, the way that the health effects are minimized  
24 to a worker is that the NRC has certain standards of  
25 regulation for exposure to workers. They are much higher

1 than are allowed to the public because the individual who is  
2 doing that work is benefitting from the risk that he is  
3 exposing him to. It is someone like the people that choose  
4 to ride in a rodeo who get paid pretty well for that, I  
5 guess, or someone who works as a iron worker and he takes  
6 some risk.

7 Now, the limits that we have placed are three rem  
8 per quarter per worker. Any individual worker cannot get  
9 greater than three rem per quarter. The licensee has taken  
10 and cut that by a third. He limits his workers to one rem  
11 per quarter.

12 I will move along to the next slide.

13 There was a large volume of water generated as a  
14 result of the accident, a total of about 1.2 million  
15 gallons, about 450,000 gallons of which have been treated  
16 and cleaned up. The treated water can be handled by a  
17 number of different methods.

18 Now, I know that there is a large concern about  
19 the fact that NRC has a foregone conclusion that is going to  
20 allow the licensee to dump that water into the river and  
21 send it down the Susquehanna into the Chesapeake Bay. I  
22 want to make it very clear that that is not at all our  
23 intent. That is one of the alternatives. It is a  
24 technically possible alternative.

25 Reactor plants both in this country and abroad

1 routinely release small amounts of dilute tritium. Within  
2 our regulations and within EPA's regulations it is done  
3 routinely. There is no evidence of any health effects as a  
4 result of that. It is probably one of the most closely  
5 monitored, best understood phenomena in the industrial world  
6 today.

7           When I contrast that, for example, with the  
8 effects of coal plants, the nuclear side of the monitoring  
9 program and the nuclear side of the regulatory program is  
10 eons beyond anything that is applied to conventional power  
11 plants.

12           However, I don't want anyone to misunderstand, we  
13 haven't made any decisions in this area. The possibility of  
14 handling that water by any one of a different number of  
15 methods remains as clear, viable and feasible options. The  
16 public's concern in this area, and my own personal concern  
17 in this area, and just as a sideline I have spent the last  
18 25 years sailing on the Chesapeake Bay, I eat the crabs, and  
19 I want to be able to continue to eat them and I want them to  
20 be available for me and everyone else.

21           I recognize that there is a significant public  
22 concern on this issue, and I can't emphasize too much that  
23 that public concern will play an important role in our  
24 decision and in the NRC Commissioner's decision. Ultimately  
25 the Commissioners of the Nuclear Regulatory Commission,

1 Presidential appointees, will make that decision. We will  
2 make our recommendations to them and they will take them or  
3 not. We haven't made any recommendations on this subject.

4           Let me point out also that the clean-up will  
5 require large volumes of water. Obviously, we are not going  
6 to allow the licensee to use more fresh water in that  
7 process. The water that has been processed does have  
8 tritium in it. It can't be removed by any feasible  
9 industrial technique and that water, to the extent that it  
10 can, will be used over and over and over again to clean up  
11 the plant, to wash down the plant, to flush systems, et  
12 cetera. It will be used in the clean-up, it is will be  
13 processed and the radioactive material will be removed  
14 except for the tritium and it will be recycled over and over  
15 again. I wouldn't expect to see any significant amount of  
16 fresh water introduced into the process. So at least we  
17 will be able to maintain what came out during the accident  
18 as being by far the bulk of what is going to have to be  
19 disposed of by some mechanism.

20           There are, as I say, discussed in the document, a  
21 number of very, very viable alternatives to diluting it and  
22 allowing it to come down the river.

23           Let me go on, and I want to discuss some of the  
24 accident scenarios that we have looked at. One of the  
25 things that we as a regulatory agency require is asking

1 ourselves the question and asking the licensee what if. The  
2 big question we asked is what if the water leaks from the  
3 containment building and there is about 650 to 700 thousand  
4 gallons of water sitting in the bottom of the reactor  
5 building. It is well contained, but we asked the question  
6 anyhow, what if it were to leak? We have taken a look at  
7 that problem.

8           What would happen to someone, for example, that  
9 drank a large quantity of water, two liters per day for a  
10 year, for example? Well, what would be the dose under those  
11 circumstances? This is unprocessed water now. We have  
12 calculated, and it is a pretty straightforward calculation,  
13 that about 30 millirem would be accumulated to that  
14 individual.

15           Likewise, if an individual were to consume 20 or  
16 so kilograms of fish in a year he would receive a dose from  
17 that fish of about 27 millirem. That is not suggesting that  
18 anyone would go out under those conditions and drink the  
19 water or eat the fish, and I am also not suggesting that  
20 those conditions could obtain.

21           The main reason that we think that the leakage  
22 from the containment building is of very, very low  
23 probability and even a lower probability if it were to  
24 escape are our not detecting it, is because the building has  
25 held very well for this period of time. The sump, the

1 bottom of the building where the water is collected. It is a  
2 steel-lined building in the areas at least where the water  
3 is contained. In addition, there are a number of monitoring  
4 wells that we required the licensee to drill all the way  
5 around the building and samples of water from those wells  
6 are taken frequently and they are analyzed for any possible  
7 radioactivity that might have come from the building.

8           Even if it were to leak and we were to miss it, it  
9 would still take, according to our analyses, it would take  
10 over a year and a half before it would percolate through the  
11 soil and get to the river itself.

12           Certainly during that period of time there are  
13 many engineering solutions that can be put into play in  
14 order to stop that water from going any further. There are  
15 proven techniques to do that.

16           The bottom line on it, as I have indicated on the  
17 slide, is that even if we didn't do anything or we didn't  
18 know that anything was going on, even then, and if people  
19 were to consume the water and the fish, the doses are still  
20 in the range of less than the annual background radiation.  
21 However, they are higher than we would want anyone to be  
22 exposed to.

23           The next slide, please.

24           One of the major concerns in both the Three Mile  
25 Island area and down here in the Maryland area is the

1 question of psychological stress. There is no doubt that  
2 the people up there have been subjected to severe stress  
3 during the accident and even during the period of time which  
4 the krypton was vented this past summer.

5           We are sensitive to that point, and I must admit  
6 that I am an engineering and I am not a psychologist or  
7 psychiatrist and I don't pretend to have any great expertise  
8 in the area. We have some people on our staff who have  
9 training in that area and we have also engaged a group of  
10 professional psychiatrists and psychologists to advise us  
11 because I think that is an area that an agency such as ours  
12 normally doesn't get into that kind of an issue. That is  
13 more of an area for other parts of the government. We have  
14 felt it necessary to get advice from them so that they  
15 could, if they see that there are clear choices that would  
16 serve to mitigate the stress for the people, clearly we  
17 would favor those approaches.

18           One of the things that we learned from talking to  
19 them is that most people want to get the place cleaned up as  
20 quickly as possible as long as it is safe. It is clear to  
21 us, and they have confirmed that, that that logically should  
22 be the thing to do.

23           It is our intent, even with the problems that the  
24 licensee has today with financial problems, to press on to  
25 the best of our agency's ability and the ability of the



1 U. S. Government as a whole, to expeditiously clean up the  
2 plant, taking into account safety and the effect on the  
3 environment.

4 Next slide, please.

5 We also take a look in the programmatic  
6 environmental statement on social impacts such as reduced  
7 property values, competition between the work force and the  
8 tourists in that area for temporary housing and what the  
9 traffic congestion might occur.

10 We have taken a look and are looking further at  
11 some of the economic impacts such as electricity rates,  
12 reduced tourism in the area and possibly resistance to  
13 consumption of agricultural and fishery products that the  
14 public may think are radioactively contaminated.

15 Now, Clarence Hickey can speak a little more to  
16 that subject, and I know it is of great concern down here,  
17 and I must say I share that concern because misinformation  
18 on the part of an organization like ours or any organization  
19 can strongly shape the market forces when it comes to  
20 consumption of either agricultural or fishery products.

21 The next slide, please.

22 We have taken a look at the number of truck  
23 shipments that are necessary to carry the solid radioactive  
24 waste offsite to disposal areas. The range of those is  
25 quite considerable in our estimates in the draft of these

1 because we really had to make some judgments as to how much  
2 radioactive material would be generated. There are a lot of  
3 unanswered questions about the conditions inside the  
4 containment building and particularly inside the reactor  
5 vessel.

6           So the estimates we have tried to bracket. This  
7 is one of these worst case/best case bracketing analyses  
8 that we have done. That range from 650 to 1,700 truck  
9 shipments. We expect that they will be spread out over a  
10 long period of time and the traffic congestion problem  
11 should be essentially non-existent.

12           Recognize that all shipments are made under  
13 federal packaging and shipping regulations. The NRC is  
14 responsible for the packaging and the design of the  
15 packages. To certify that the packages are satisfactory we  
16 inspect the packages before they leave the island. That is  
17 one of the major functions of the office there.

18           There is a shared responsibility in the  
19 transportation of radioactive materials. The Department of  
20 Transportation sets the standards for the trucks and the  
21 transporters. We work closely with them and to date the  
22 experience has been quite good and I see no reason that  
23 there should be any problems in this area.

24           The packaging is designed so that even in the case  
25 of an accident any radiation releases would be very, very

1 small. For the very high radioactive materials it would be  
2 contained in large heavy shipping casks, much like the fuel  
3 shipping casks that are used.

4 The next slide, please.

5 Now, we have concluded clearly that the  
6 radioactive material needs to be removed from the site. It  
7 shouldn't stay there. The island in the middle of the river  
8 is clearly not a suitable place as a long-term or permanent  
9 disposal site.

10 There are some problems with disposal of waste in  
11 the United States, the referendum in Washington being the  
12 source of a problem. The need obviously exists to find a  
13 place to dispose of those materials and we working hard on  
14 it. There are other waste burial sites in the United States  
15 that are perfectly suitable and are being actively used by  
16 other plants for that purpose.

17 It is clear to us that the radioactive fuel and  
18 the other high activity wastes from TMI-2 must be packaged.  
19 They may have to be stored on the site until a suitable  
20 disposal site is established elsewhere. We have taken a  
21 look at what the environmental impact of temporary storage  
22 on the site is, and it is very insignificant.

23 Our position is clear in the PEIS, and it remains  
24 our position today, and I see no reason to change it, and  
25 that is that the waste must be removed from the island. The

1 island isn't a place to store it permanently.

2           The next slide, please.

3           One of the questions that frequently comes up is  
4 has anybody ever cleaned up anything like this before? The  
5 answer is no. Nobody has had an accident like this before.  
6 There have been other accidents, however, other incidents  
7 and other exercises where plants have actually been  
8 decommissioned. Large-scale decontamination is not  
9 something foreign to the industry. There are years and  
10 years of experience both in this country and abroad. There  
11 are existing techniques well documented. There are books on  
12 the subject. There are many people who have spent their who  
13 professional career on the subject of decontamination.

14           There are, as I say, existing techniques that are  
15 adequate to carry out the clean-up. There will be some  
16 modifications that will be necessary to handle the  
17 particular situation. For example, removal of the core  
18 itself will require some special tooling. That has been  
19 done before with other reactors that have been seriously  
20 damaged.

21           It is pretty clear to me, based on my own  
22 experience in the decommissioning of a major power plant in  
23 the United States that the operations can be cleaned up and  
24 the clean-up operations can be carried out with minimal  
25 releases of radioactivity and insignificant effects on the

1 environment.

2           The next slide, please.

3           This is based on the conclusion of the PEIS that  
4 the clean-up would take five to seven years. As I mentioned  
5 earlier, I believe we will be reassessing this based on the  
6 current slow start that the main clean-up has taken.

7           At the time that we made the estimate we were  
8 somewhat longer than the licensee at that time himself was  
9 estimating. Their estimate now is about seven years. I  
10 think ours will be somewhat longer than his again. They  
11 tend to be much more optimistic than we do.

12           The next slide, please.

13           One of the conclusions that we have reached and  
14 probably the only major conclusion that we have reached in  
15 the PEIS, and as I indicated it is not a decision-making or  
16 a conclusion promulgating document, is that the clean-up  
17 will alleviate the several potentially hazardous conditions  
18 at TH1-2.

19           There is always the possibility of accidental  
20 releases due to human failure and mechanical failure. As  
21 long as the material is there we recognize that there is a  
22 possibility of release.

23           Obviously it is therefore incumbent upon us and  
24 all those involved to proceed with the clean-up as quickly  
25 as possible.

1           That is all that I was going to have to say. I  
2 would like to turn it over to Clarence Hickey who will speak  
3 to you a little bit about the fisheries effect.

4           MR. HICKEY: Thank you.

5           The potential consequences of clean-up to aquatic  
6 biota and fishery resources of the Susquehanna River and  
7 Chesapeake Bay are examined in the draft EIS in both a  
8 radiation and a non-radiation context.

9           The non-radiation considerations include a  
10 description of the aquatic biological and fishery resources  
11 along the path of the Three Mile Island effluent in both the  
12 river and in the upper Chesapeake Bay.

13           Appendix E in the rear of the document summarizes  
14 what I consider to be the important points concerning the  
15 fish community, the shell fish community, fish food habits,  
16 recreational and commercial fisheries, presence or absence  
17 of endangered species in the bay and in the river and the  
18 presence of bay fish stocks that are thought to be in some  
19 sort of trouble today.

20           These descriptions also have provided input to the  
21 analyses of radioecology and socioeconomic impacts of  
22 clean-up in the EIS. Some of these descriptions and  
23 analyses are also contained in the question and answer  
24 document which was distributed in the back of the room.

25           These analyses lead me to conclude that there are

1 important and significant resources along the effluent path  
2 in both the river and the bay.

3           The upper bay is a significant spawning and  
4 nursery area for many fish species. The bay is an important  
5 area for fisheries, recreational and commercial fisheries,  
6 primarily fin fishes in the upper bay and the flats area but  
7 shell fishes and crustaceans down bay from the flats.

8           Since 1974 there has been an ongoing program of  
9 monitoring aquatic biota and sport fisheries in the York  
10 Haven Pond in the immediate Three Mile Island area. The  
11 York Haven Pond is that portion of the Susquehanna River  
12 which is formed by the York Haven Dam to the south of Three  
13 Mile Island.

14           These biological studies have included water  
15 quality, benthic invertebrates and vertebrates of the river,  
16 fishes, sport fishery effort, catch and harvests and general  
17 river ecology.

18           The York Haven Pond area is that area of the river  
19 or the aquatic system, including the river and the bay,  
20 where effluents would first enter the river where they would  
21 be the least dilute and therefore potentially the most  
22 harmful and that area of the river or the aquatic system  
23 where effects would be seen first if we saw them if they  
24 were there.

25           Following the Three Mile Island accident sport

1 fishery harvest reductions occurred in the river due to  
2 anglers' concern with eating fish that they thought were  
3 contaminated. Fishing effort by those anglers, that is the  
4 number of anglers and the hours they spent fishing during  
5 1979 following the accident, were not changed from the  
6 historic levels that were measured during the five years of  
7 pre-accident studies, 1974 through 1978.

8           The effects that were seen were small and  
9 temporary, as I said, with no changes in fishermen numbers  
10 or in their catch, but with reductions in the harvests.

11           There could be similar effects following releases  
12 if they were to occur for both the river and the bay.  
13 Catches, harvests or marketability of seafood could decline  
14 temporarily for some species in the bay and there would be  
15 some angler avoidance of species or areas of the bay,  
16 especially if effluents were detectable.

17           Thank you.

18           I will turn it over now to Oliver Lynch who will  
19 talk about the radiation side effects.

20           MR. LYNCH: Thank you, Clarence.

21           Although several alternatives for disposal of  
22 processed water have been considered in the PEIS and no  
23 decision has been made as to which one should be chosen, the  
24 alternative of greatest interest to the public residing in  
25 the region of the Susquehanna River and the Chesapeake Bay



1 is disposal by release to the river.

2           For this reason the staff has evaluated this  
3 alternative in great detail, and for this reason I will  
4 discuss releases to the river and the subsequent  
5 environmental impacts tonight. However, please keep in mind  
6 the staff's emphasis on this alternative is motivated by the  
7 public's concern over the issue and NEPA requirements and  
8 does not constitute on behalf of the staff any  
9 recommendation or endorsement of this alternative.

10           Can I have the first viewgraph.

11           The areas of interest for environmental impacts of  
12 releases to the river are the Susquehanna River and the  
13 Susquehanna flats above the influence of the Sassafras  
14 River. Below this point it is highly unlikely that  
15 radionuclides from TMI-2 clean-up releases to the river from  
16 controlled or accidental releases would be detectable.

17           The next slide, please.

18           Concerning releases of accident water from TMI-2,  
19 the staff has come to three radiological conclusions.

20           The first conclusion is that Susquehanna River and  
21 upper Chesapeake Bay sediments, in other words the flats,  
22 would remain slightly contaminated with low but measurable  
23 levels of cesium 137 after either controlled or accidental  
24 discharges. This might be a source of continuing public  
25 concern since radioactivity might be detectable in sediments

1 for years after the releases are completed. However, it  
2 would pose very small hazards to man or to other organisms.

3 The second conclusion is low but detectable levels  
4 of cesium 137 from TMI-2 might persist in some fish of the  
5 upper bay for 18 to 24 months after control or accidental  
6 releases of processed water from TMI-2.

7 The third conclusion is at the postulated  
8 radionuclide concentrations radiation effects on fish, shell  
9 fish and other biota in the river and the Chesapeake Bay  
10 would be minimal and would have no impact on the aquatic  
11 populations or on man.

12 The next slide, please.

13 I have indicated in this slide the concentration  
14 of radionuclides in processed effluent due to controlled  
15 releases into the Susquehanna River if this method were  
16 authorized from the zeolite resin system. I have placed it  
17 so people can understand it in terms of EPA drinking water  
18 standards, in other words, in terms for continuous use of  
19 the water. This is representative of controlled releases of  
20 processed water into the Susquehanna River.

21 The first column is indicative of the  
22 radionuclide. The second would be the concentration of that  
23 radionuclide at the point of release in terms of factors  
24 the standards. The third column would be the point of  
25 interest of the nearest water intake, in this case the York

1 Haven Dam, again a factor of the standards.

2           Looking at the first one, tritium, it would be 39  
3 times the standards at point of release and three-tenths of  
4 the standards at the first place where it could be consumed.

5           Cesium 137, 23/100ths at the point of release and  
6 2/1000ths of the standards at the point of interest.

7           Cesium 134, 1/10th of the standards at the point  
8 of release and 8/10,000ths of the standards at the point of  
9 the nearest intake.

10           Strontium 90, 1.9 times the standards at the point  
11 of release and 2/100ths at the point of the nearest intake.

12           Strontium 89, this figure was .044 but because of  
13 the 52-day half life right now that number is 0.0028, or  
14 28/10,000ths at the point of release and it will always get  
15 smaller, and .00003 times the standards at the point of the  
16 nearest intake.

17           These are calculated with a processed water flow  
18 of 30 gallons a minute, a dilution flow of 36,000 gallons a  
19 minute and a river flow of 10,000 cubic feet per second  
20 which is 4 million 500 thousand gallons per minute.

21           The next slide, please.

22           This is an indication of what it would be in the  
23 fish, the radionuclide concentration and absorbed radiation  
24 dose in fish in the Susquehanna River due to controlled or  
25 accidental releases of processed water, and I have placed

1 this in terms of ambient background. Again the radionuclide  
2 is the first column. The next two columns are for  
3 controlled releases of peak radioactivity in the fish in  
4 terms of background and the dose to the fish in terms of  
5 background. The last two columns, accidental releases, peak  
6 radioactivity in fish and dose to fish.

7 For tritium, controlled releases, the peak  
8 activity in fish would be 25 times the background. The dose  
9 to the fish would be 0.01 times the background or 1/100th of  
10 the background. For an accidental release, 38 times the  
11 background. The dose to the fish, 2/100ths of natural  
12 background.

13 For cesium 137, controlled releases, 3.5 times the  
14 natural background. The dose to the fish, 6/100ths of the  
15 natural background. For the accidental release, cesium 137,  
16 5.8 times the natural background, or 1/10th of the natural  
17 background dose.

18 Cesium 134, strontium 90 and strontium 89 will not  
19 be detectable in the fish in the controlled release and the  
20 doses to the fish would be less than 1/100th of that natural  
21 background.

22 For the accidental releases cesium 134 would be  
23 1.3 times the background, strontium 90 would be 1.2 times  
24 the background and the strontium 89 would not be detectable.

25 Can I have the next slide, please.

1           For fish in the Chesapeake Bay, in this case the  
2 Susquehanna flats, the same information. I won't have to  
3 redo the format. I will just point out that the asterisk in  
4 the second column indicates that the radionuclides are not  
5 detectable. The dose to background, I will simplify that by  
6 adding them all up. The dose to the fish in terms of  
7 background for a controlled release is 1/10,000th of the  
8 background. For accidental releases, again none of the  
9 radionuclides are detectable and the dose to the fish,  
10 2/10,000ths of the background total for all radionuclides.

11           The last slide, please.

12           For man the total body doses to the maximum  
13 exposed individual for controlled releases of the zirconium  
14 resin system processed reactor building sump water. For the  
15 drinking water pathway, as Dr. Snyder indicated, two liters  
16 a day for 730 liters per year, a dose of 2.2 times ten to  
17 the minus 4 millirem. In terms of background dose, this is  
18 2/1 millionths of the background. This is a controlled  
19 release.

20           For fish consumption, 21 kilograms a year, the  
21 dose would be 5.1 times ten to the minus 4 millirem, or  
22 4/10 millionths of the background.

23           The total background dose would be 6/10  
24 millionths. The total dose, due to both of these pathways  
25 would be 6/10 millionths of the background.

1           The health effects due to this in terms of cancer  
2 fatalities, 8.4 times ten to the minus 13th, i.e, or in  
3 other words, zero. The background, by the way, is one in  
4 five.

5           The genetic effects to the fifth generation, 1.6  
6 times ten to the minus 12; in other words, zero. The  
7 background in this case is one in seventeen.

8           Back to Mr. Cawood. Thank you very much.

9           MR. CAWOOD: All right. I want to start in with  
10 the comments and questions now, but I am going to call one  
11 person first and then I will move around the audience.

12           As you may know, the impetus of this meeting came  
13 from the Office of Senator Paul Sarbanes who requested that  
14 we have a meeting in Baltimore. He has sent a  
15 representative here and I would ask him to come up on the  
16 stage if he would to give the comments of Senator Sarbanes.

17                           COMMENTS OF SENATOR PAUL A. SARBANES

18                                   AS PRESENTED BY BRUCE GILMORE

19                                   SPECIAL ASSISTANT TO SENATOR SARBANES

20           MR. GILMORE: Thank you very much.

21           My name is Bruce Gilmore. I am a Special  
22 Assistant to Senator Sarbanes.

23           The Senator had a previous engagement in Southern  
24 Maryland tonight and he asked me to read this statement  
25 which he also requests be submitted as part of the record.

1 I appreciate the opportunity to submit this  
2 statement at this public meeting on the draft environmental  
3 impact statement concerning the post-incident clean-up of  
4 the Three Mile Island nuclear reactor.

5 Earlier this fall I wrote to the Chairman of the  
6 Nuclear Regulatory Commission underscoring the importance of  
7 public comment on this issue and urging that this public  
8 meeting be held.

9 It is important that this meeting provide Maryland  
10 citizens with a further opportunity for a public hearing of  
11 the critical issues raised by the TMI clean-up.

12 This hearing is, of course, part of the public  
13 comment process associated with the draft EIS, a public  
14 comment period which was extended to November 20th, 1980.  
15 It is my understanding that the NRC plans to complete the  
16 final EIS by early 1981.

17 While the public comment period on the draft EIS  
18 will end shortly, it is my strong view that the NRC should  
19 actively continue to seek public participation in the  
20 clean-up decision-making process. The serious nature of the  
21 TMI accident and of the consequences of any clean-up  
22 activity will require the opportunity for further public  
23 comment before a final decision is made on any of the  
24 various proposed clean-up options.

25 Maryland citizens, given their proximity to TMI

1 and the possible consequences for our environment, are  
2 entitled to no less.

3           Turning to the draft EIS itself, I remain  
4 concerned about the adequacy of the environmental assessment  
5 of the various disposal options for the contaminated water  
6 now being held at TMI. Release of this water into the  
7 Susquehanna River and thus into the Chesapeake Bay is  
8 clearly an alternative fraught with serious negative  
9 environmental consequences.

10           (Applause.)

11           Chesapeake Bay is one of our nation's preeminent  
12 estuaries upon which Marylanders depend in a number of  
13 important ways. The Susquehanna River provides the greatest  
14 amount of fresh water for this huge estuary system as well  
15 as drinking water for a substantial number of Marylanders.

16           Under no circumstances can the integrity of the  
17 river as a source of drinking water or the bay and its  
18 seafood products be compromised.

19           (Applause.)

20           Consequently, I take strong issue with the draft  
21 EIS statement at pages 10-23 downplaying the effect of the  
22 release of the processed water on the bay.

23           Ongoing research on the Chesapeake Bay's ecosystem  
24 has revealed that both fin fish and shell fish and even  
25 aquatic grasses are under a great deal of stress.



1 Populations of many species have decreased and evidence is  
2 accumulating that adverse changes in water quality may be  
3 responsible. Under these circumstances increased levels of  
4 radiation, even small, may have a severe impact.

5           Furthermore, I believe the views set out in the  
6 impact statement that the marketability of the fisheries  
7 products will not be adversely affected if, and I underscore  
8 if, the effects are properly understood by consumers amounts  
9 to a tacit admission that such adverse effects will in fact  
10 occur.

11           The NRC must undertake a more complete analysis of  
12 the other options for dealing with the contaminated water,  
13 including more detailed information on each option and the  
14 full cost thereof.

15           The purpose of the environmental impact statement  
16 process is to set out the details of the range of choices  
17 available. The draft EIS will not achieve that purpose  
18 unless all the options listed are subject to greater  
19 analysis.

20           Detailed comments on the draft EIS have been made  
21 by many citizens in groups as well as public officials and  
22 representatives from Maryland agencies with responsibility  
23 in the environmental area. The expertise and critical  
24 analysis offered by these commentators were critical to the  
25 decisions to be made about the clean-up action.

1           In his respect, given the unprecedented and highly  
2 complex nature of the clean-up, it is imperative for the  
3 Nuclear Regulatory Commission to continue to consult with  
4 the public concerning the clean-up.

5           I again urge the Commission to assure Maryland  
6 citizens and public officials that they will be consulted  
7 prior to and be given a chance to comment upon any action  
8 the Commission proposes to authorize during the lengthy  
9 clean-up process.

10           Thank you very much.

11           (Loud applause.)

12           MR. CAWOOD: I am not going to call for  
13 questions. Just to repeat very briefly the format, I will  
14 move around the audience. I would ask you not to gang up at  
15 the mike because we are not going to do it that way. I  
16 think it works better the other way. We would ask you to  
17 introduce yourself. We would ask you, if you remember, to  
18 spell your last name for the reporter. We would also ask  
19 you to identify any expertise you may have. We will try to  
20 give everyone a chance to speak.

21           When I came in tonight through the pouring rain  
22 out there another gentleman and I were both hurrying for the  
23 front middle doors and he indicated to me, he said, will the  
24 stockholders get a chance to speak tonight because he heard  
25 me tell someone I was running it. I don't know what

1 stockholders they are, but I think all the stockholders,  
2 including the stockholders in this State and this country  
3 will have an opportunity.

4           So if you would like to make a comment if you will  
5 raise your hand I will try to move around and recognize you.

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1 MR. CABLER: Thank you.

2 I am John Cabler, Coordinator of the Maryland Ad  
3 Hoc Committee and I am also speaking for the Clean Water  
4 Action Project.

5 I am glad you came here tonight in the rain. I  
6 wish we had more notice. I think a week's notice is not  
7 very much, but even in the rain and even with only a week's  
8 notice you can see the citizens of Baltimore turned out  
9 anyway.

10 I would like to thank Senator Sarbanes for helping  
11 us get this meeting that we have been working on for about  
12 six months to get in Baltimore.

13 On October 29th in Havre De Grace, Dr. Snyder, I  
14 believe you said that there wouldn't be a meeting in  
15 Baltimore and it made it difficult for us to prepare our  
16 testimony and get our schedules together, but I am glad you  
17 are here anyway.

18 As you know from former testimony in Annapolis and  
19 Havre De Grace, the Ad Hoc Committee and the Clean Water  
20 Action Project believe that basic flaws in the document  
21 invalidate the document completely. We would therefore urge  
22 you to put together a revised environmental impact statement  
that will correct the flaws by including cost estimates,  
because, as you know, there are no cost estimates in the  
programmatic environmental impact statement which makes it

1 impossible for citizens to perform a cost-benefit analysis  
2 to find out if maybe you are doing maybe the cheapest and  
3 not the safest clean-up.

4           Also, we are worried that there are no assurances  
5 that the high-level waste on the island will be disposed of  
6 or any of the waste on the island. Governor Hughes agrees  
7 me. This is a letter from Governor Hughes to President.

8           "The draft environmental impact statement reveals  
9 that federal agencies are following a course of action that  
10 will make Three Mile Island a long-term storage dump for  
11 radioactive waste. Nothing could be more dangerous to  
12 Chesapeake Bay and the people of Maryland. No responsible  
13 agency would locate a dump for radioactive waste on an  
14 island in a flood plane above the water supply of a major  
15 metropolitan area poised at the head of the Chesapeake Bay.  
16 Yet, because of refusal to consider any other realistic  
17 alternative that will be the result of actions described in  
18 the draft environmental impact statement".

19           I agree with Governor Hughes that that is not the  
20 right answer.

21           Also, as far as the statement in the draft about  
22 the marketability of the seafood, it seems from what your  
fisheries expert said there will be an effect on the  
marketability of the seafood if a release occurs. Our  
feeling is that if you are consider releasing water into the

1 Susquehanna River and expect that statement to fly that it  
2 won't affect the marketability of the seafood, you will at  
3 least have to do a market research analysis independently,  
4 hire an independent team that can do those surveys and come  
5 up with a more credible answer. I just don't buy it.

6 (Applause.)

7 We would also hope that you would respond to the  
8 new EPA funded Independent Scientific Research Team,  
9 something that EPA has just put together that we are looking  
10 forward to working with, and also, that you complete the  
11 revised environmental impact statement quickly.

12 I know you have indicated to me that you think we  
13 are trying to slow the process down. That is not true now.  
14 It was at the beginning. It was like trying to catch a  
15 speeding bullet, this clean-up, going somewhere. We wanted  
16 to catch it before it got away. Now I think we have caught  
17 and we want to see where it goes. We want to change its  
18 direction. That is what we are trying to do. We are not  
19 trying to slow things down.

20 What we would like would be full public hearings  
21 on the revised draft. We would like the revised draft not  
22 to be a best case/worst case analysis as the present  
environmental impact statement is, but instead to be a  
blueprint, as we suggested on March 20th, a blueprint to  
follow that would suggest compatible processes that would

1 work together to ensure a safe cleanup.

2 We feel that the credibility of the Nuclear  
3 Regulatory Commission is shot with the public anyway, with  
4 the people of Maryland, and that you can't put it back  
5 together without us, without working with us.

6 The accident focused a powerful spotlight on the  
7 clean-up arena, a beam of light on the arena. We can now  
8 see what needs to be done.

9 My question to you is, will you do it? Will you  
10 write a revised EIS as quickly as possible and have public  
11 hearings, cost estimates, adequate consideration of waste  
12 disposal methods, develop alternatives to dumping in the  
13 Susquehanna River, an option that is clearly not acceptable  
14 to the people here, to the people in Havre De Grace and to  
15 the people of Maryland, to Senator Sarbanes. It is not  
16 acceptable to anyone, to the Maryland Waterman's  
17 Association, the Chesapeake Bay Foundation, and the list  
18 goes on and on and on, as you know.

19 Will you write a new environmental impact  
20 statement?

21 MR. SYNDER: Yes, we are going to provide a final  
22 environmental impact statement. I will not commit to  
providing another draft. I think that is a delaying tactic.

I think it is important to know note that it is a  
draft statement. That is the purpose of the document to

1 engage the public. We are getting good comments, including  
2 yours on the document. We will take those into account and  
3 we will be revising it and we will have a final out I hope  
4 by the end of February.

5 Individual actions will be taken basically by the  
6 Commission. Under conditions where there is a licensed  
7 amendment required there will be opportunity for further  
8 public input in the form of hearings if necessary.

9 MR. CABLER: Dumping processed water into the  
10 Susquehanna River would not require a licensed amendment,  
11 would it?

12 MR. SNYDER: I would be happy to review that  
13 question from that perspective. Again, I can't urge on the  
14 public too much the fact that we haven't made any decisions  
15 to dump any water and the chances are that that decision  
16 will not go that way. However, I don't want to commit  
17 myself one way or the other because I am not the one that is  
18 going to make that final decision.

19 Now, you made a number of other comments and I  
20 would like to try to respond to them, if I may, one of which  
21 is that we did not include costs. There is a reason we  
22 didn't includes costs. There simply was time. To get on  
with the job we felt that we would sacrifice the fact that  
there were no costs in there. We will have costs in the  
final document.



1 I have said this before and I sincerely believe  
2 it, that costs are a secondary or a tertiary consideration.  
3 The important thing is to get the plant cleaned up and take  
4 a look at the technically feasible options that will provide  
5 a rapid clean-up. That is really the goal. Cost is not an  
6 important factor in our opinion. In fact, many of those  
7 alternatives that were considered the cost differentials  
8 that we are looking at now are not very significant, but we  
9 will provide in the final statement the difference between  
10 one alternative and another on the cost basis as well as  
11 other bases.

12 We are not going to come up with a total cost  
13 estimate of the clean-up. That is meaningless. That is not  
14 our problem. That is the licensee's problem.

15 Now, there were a number of other comments. I  
16 would like to ask Clarence Hickey to respond to the one with  
17 regard to the question of the marketability of the fishery  
18 products because I know that is of considerably interest to  
19 the people here.

20 Clarence.

21 MR. HICKEY: Thank you.

22 Mr. Cabler, with respect to revising the EIS to do  
a more thorough job on the marketability, we are doing  
that. We have recently formed a small task group consisting  
of myself, socioeconomic expert, a psychological stress

1 expert and a socialpsychologist. We have had to this point  
2 several interviews with groups which we think have some  
3 expertise beyond our own to help us do this.

4 We have met with the Maryland Waterman's  
5 Association, Larry Sims, the President. We met the the  
6 Maryland Office of Seafood and Marketing, Mr. Robert Prior,  
7 and we have met with the National Marine Fisheries Service's  
8 Consumer Services Division. All of them have some expertise  
9 in the marketing of seafood and knowing the effects that  
10 extenuating circumstances can have on seafood marketability.

11 We are trying based on their information and their  
12 help and advice to us as well as our own resources to try to  
13 expand upon this question in the final EIS and make some  
14 sense out of it.

15 We are convinced by your own comments and those of  
16 the public in general at the Annapolis meeting, at the Havre  
17 De Grace meeting and some tonight as well as many written  
18 comments we have received from various organizations,  
19 including the Waterman's Association, among others. So we  
20 are in the process of trying to do a more sophisticated  
21 analysis to try to get a handle on what the effects could be  
22 and, if there are effects, how severe will they be.

It is a difficult question and we may no be able  
to quantify it down to as fine as someone would like to see  
it.

1 MR. CABLER: Find some other place to put the  
2 water and you would save yourself the trouble.

3 (Applause.)

4 MR. HICKEY: Regardless of what the options are,  
5 what you would prefer or what I would prefer or anyone else,  
6 we still have to examine all of the options and lay out all  
7 the courses and the consequences of each. I think it is our  
8 responsibility. I feel it is mine to try to do the best I  
9 can to do an objective review so that those who will end up  
10 making the decision on this, if it comes to that, will have  
11 the benefit of what we are able to tell them.

12 MR. CABLER: Thank you.

13 There are some other people here. So I think I  
14 will move on rather than argue out all the millions of  
15 remaining points.

16 (Applause.)

17 MR. CAWOOD: Go ahead, sir.

18 MR. HOLSTON: My name is Bill Holston. I am an  
19 engineering in the Nuclear Engineering Section at Baltimore  
20 Gas and Electric working on the Calvert Cliffs Nuclear Power  
21 Plant.

22 I would like to point out at this point my views  
do not necessarily represent those of Baltimore Gas and  
Electric's. I am here as a citizen.

I would like to read a statement I have read in

1 the Nuclionics Week, and then ask a question from that.

2 Metropolitan Edison, the Nuclear Regulatory  
3 Commission and the Department of Energy are acutely aware of  
4 the political relations ramifications of dealing with TMI  
5 waste and therefore are hesitant to strike a clear waste  
6 management plan even though the waste that must be handled  
7 is no greater, and I repeat no greater in radioactivity or  
8 volume than that generated by some government and commercial  
9 nuclear operations a variety of sources say.

10 Most of the waste in question at TMI consists of  
11 cesium and strontium isotopes and is divided into two  
12 categories, low-level material consisting of resins from the  
13 Epicore 2 systems, treated water which spilled into the TMI  
14 auxiliary building and high-level material in the water  
15 resting in the containment sump.

16 Speaking of the low-level waste, a DOE source said  
17 ordinary low-level waste can be disposed of by shallow  
18 burial. This, however, has been deemed not ordinary. The  
19 comment was a reference to NRC's order that low-level waste  
20 as TMI be solidified.

21 I realize that you said that cost is not a  
22 question, but I question the fact that why are taxpayers'  
and ratepayers' valuable resources being wasted on spending  
on systems that really aren't needed? Why is a concrete  
solidification system needed at TMI when this waste is no

1 different than at other plants and it is not done there?

2           MR SNYDER: Let me clarify that. The order that  
3 the Commission issued about a year ago requiring the  
4 licensee to solidify the wastes was restricted to certain  
5 kinds of wastes, namely the resins from the Epicore 2 system  
6 which were used to treat the water from the auxiliary  
7 building. It is not all the wastes on the island that  
8 presumably that comment would lead one to believe.

9           The bulk of the wastes will be very low level and  
10 should cover all rads and what-have-you. They will be boxed  
11 in assay boxes and most specifically activity boxes,  
12 barrels, et cetera. They will be trucked out as normally as  
13 they are done for any nuclear power plant.

14           What we have required to be solidified are those  
15 wastes which will be required to be solidified in the near  
16 future at any licensed burial site in the United States,  
17 including those that accept wastes from Baltimore Gas and  
18 Electric. I believe as of next July, and I may be wrong in  
19 the exact date, the resin materials will have to be provided  
20 in a solidified form. Right now they have to be shipped as  
21 dewatered and they can't arrive in any significant  
22 quantities with water in them.

          There have been problems that have existed at a  
number of waste burial sites with resins of this nature that  
have arrived and have been in a form that was not suitable

1 and in fact have been returned to the power plants. You are  
2 probably familiar with those situations.

3           So the solidification order applies only to a very  
4 small quantity of waste, the resins from the Epicore  
5 system. I think that is a correct solution and there is  
6 nothing that we have found over the past year to change our  
7 mind about that. Licensing is in the process of coming up  
8 with a scheme to do that, and once it has it be shipped off  
9 site.

10           MR. HOLSTON: Thank you.

11           MR. CAWOOD: You mentioned I think for the first  
12 time tonight the word "Epicore 2." That is known to some  
13 but certainly not all. If you could take one or two minutes  
14 and tell us what that is and what the resins are.

15           MR. SNYDER: Yes. I am sorry. We people  
16 sometimes get hung up in our technological phrases. That  
17 happens to be a trade name actually. The Epicore 2 is a  
18 system that demineralizes the water known as  
19 demineralization. It is very similar to a water softener  
20 where certain radioactive ions are exchanged for  
21 non-radioactive ions by running the water through a large  
22 bed of resin beads.

          In the case of the resins I mentioned here they  
are made up of various commercially available demineralizer  
system materials. These resin beads happen to be organic

1 material. They are basically plastic.

2 MR. CAWOOD: Another question. The gentleman  
3 right in front.

4 MR. FOSTER: Mr. Cawood, Dr. Snyder and members of  
5 the panel, my name is Lewis Foster.

6 For five years up until last November I worked as  
7 a nuclear environmental research technician for a nuclear  
8 environmental contractor. In April 1979 I was transferred  
9 to the Three Mile Island plant to work on a unit team doing  
10 studies on the environmental air and water quality. We were  
11 doing monitoring.

12 In my previous statement at the Havre De Grace  
13 meeting on October 29th I mentioned the tendency of the  
14 nuclear industry to emphasize data which fits the needs of  
15 the industry and to overlook relevant information which is  
16 less than desirable to the industry.

17 We believe that several aspects of the biological  
18 and psychological impact of the TMI situation have been  
19 overlooked in the present PEIS draft. The current position  
20 of the industry and the NRC is based on conclusions arrived  
21 at after considering what they believe to be meaningful and  
22 accurate data.

All too often it was my experience that similar  
conclusions are based on data that is frequently in a  
scientific sense erroneous and irrelevant as far as the

1 human and biological aspects are concerned.

2           One such situation was the improper use of air  
3 monitoring equipment in auxiliary building of the damaged  
4 reactor at Three Mile Island. Radioactive iodine was the  
5 most prevalent contaminant in the air of the auxiliary  
6 building after the accident.

7           The company that I work for designed and marketed  
8 the charcoal cartridges used to determine the iodine levels  
9 at Three Mile Island. I personally did the quality analysis  
10 testing in the lab myself almost a year before the accident  
11 occurred.

12           Known quantities of air would be pumped through  
13 the charcoal cartridge at a constant flow rate. The  
14 cartridges would then be measured by equipment sensitive to  
15 radioiodine and to determine the amount and particular type  
16 of the isotopes.

17           Samples were taken from five different  
18 installations by health physics personnel on a daily basis  
19 from early April until June 22nd and every three days  
20 thereafter. These samples were analyzed in my lab as well  
21 as by the NRC and were used to determine the levels of  
22 air-borne radioiodine in the Unit 2 auxiliary and fuel  
handling buildings.

          The results were subsequently posted at the health  
physics control point and were used to determine the



1 necessity of breathing apparatus by the Three Mile Island  
2 personnel.

3 My research program necessitated frequent entry  
4 into the restricted areas of Unit 2. During my activities  
5 in the auxiliary building and the fuel handling building I  
6 would frequently find cigarette butts that hadn't been there  
7 on the previous visit.

8 Presumably the workers involved in the clean-up  
9 would assume that the levels of iodine were safe and would  
10 remove their respirators to have a smoke. Also, when the  
11 levels of iodine were low enough workers would be issued  
12 respirators which would not filter iodine but only  
13 particulate material.

14 I have a little slide show of my own to indicate  
15 some of these figures. If we could use your projector here  
16 maybe we could make this available to the people here.

17 There are just two transparencies.

18 (First slide presented.)

19 MR. FOSTER: I hope you will excuse the somewhat  
20 make-shift appearance of the graph there. On the vertical  
21 line we have the efficiency for iodine retention of the  
22 CP-100 cartridge. On the horizontal line we have the flow  
rates in cubic feet per minute.

The curve on the graph represents the efficiency  
of the cartridge for collecting radioiodine at specific air

1 flow rates. The highest flow rate we tested for in the lab  
2 was seven cubic feet per minute. The efficiencies above  
3 seven cubic feet per minute are speculative and based on an  
4 extrapolation of the known test curve.

5 MR. SNYDER: Can I ask you a question on that?

6 MR. FOSTER: Certainly.

7 MR. SNYDER: I don't see how you can make that  
8 extrapolation or how it could be made. Maybe that is the  
9 issue.

10 MR. FOSTER: This is a copy of a sheet that was  
11 put out by the company which marketed the particular CP-100  
12 cartridges. I have that available if you want to see that.

13 MR. SNYDER: Just based on that rough curve I  
14 would extrapolate that a lot differently.

15 MR. FOSTER: Okay. That is a pretty rough  
16 estimate. I can show you the exact curve. I didn't have a  
17 French curve to make the curve at the time. I can show you  
18 the exact curve afterwards if you would like.

19 (Second slide of Mr. Foster.)

20 MR. SNYDER: You will have to explain that French  
21 curve.

22 MR. FOSTER: A French curve is a little device  
that is used to get a continuous smooth curve through a  
number of points.

The above figures indicate the health physics

1 sampling installations on the vertical line, the HPR  
2 monitoring locations. On the horizontal line there are  
3 particular flow rates in cubic feet per minute which are  
4 recorded and this is well documented data also.

5 Of the total of 300 samples analyzed in my lab and  
6 by the NRC, 281 were above, or 93.2 percent were above the  
7 seven percent which was the highest test rate.

8 MR. SNYDER: Seven percent or seven cubic feet?

9 MR. FOSTER: Seven cubic feet per minute, I am  
10 sorry.

11 That leaves 19 samples out of 300 which were below  
12 that. They were probably accidents that they turned out  
13 that way.

14 Now, there are several over 10 cubic feet per  
15 minute. Regardless of the shape or the configuration of the  
16 curve that I draw, there is nothing on that graph over 10  
17 cubic feet per minute, the previous graph. That means that  
18 this data was used, perhaps not completely, but a good deal  
19 of it, and it was very important, because I seem to recall  
20 that we would analyze these samples and the very next thing  
21 they would go to the NRC labs and they would be analyzed.  
22 These were considered to be very important samples as far as  
monitoring the air quality for radiiodines in the plant.

A number of us who worked in the plant did use the  
particular air filters on the respirators when the levels of

1 iodine were determined to be safe.

2           Now, I am not trying to call attention to what  
3 happened at the plant. I am merely trying to say that the  
4 statements I believe in the environmental impact statement,  
5 there is a potential of error. There is a tremendous error  
6 here as is pretty obvious. I don't think anybody was even  
7 aware of this. I became aware of it because I did the  
8 quality analysis testing. I would frequently call up to the  
9 sample coordinator and mention that there was a problem with  
10 these flow rates, that they were too high to really  
11 accurately determine the amount of iodine in the air.

12           They would say, okay, we will do something about  
13 it. The people taking the samples don't know how to adjust  
14 the thing. Well, nothing ever happened. There were no  
15 changes. I would constantly call up and mention this  
16 problem to them.

17           MR. SNYDER: Did you ever call the NRC?

18           MR. FOSTER: No, I never called the NRC.

19           MR. SNYDER: That is the point that one calls.

20           MR. FOSTER: I think I mentioned it to my  
21 superiors and I mentioned it to the people in the plant.

22           MR. SNYDER: Each licensee and the contractor  
under our regulations has an obligation to call things to  
our attention. We can't be all eyes and ears for the whole  
world.

1 MR. FOSTER: The sample coordinators never  
2 mentioned this to the NRC because it was mentioned many  
3 times to the sample coordinators in the plant.

4 MR. SNYDER: As I understand your question, and I  
5 am going to ask Lake Barrett who was involved early on in  
6 the plant activities and he may be able to speak to this  
7 better than I can, but as I understand your question here is  
8 a case of data that was erroneously extrapolated and given  
9 false assurances that the actual environmental conditions  
10 that the workers were exposed to was not in fact what was  
11 said. Is that correct, or was there something more that you  
12 wanted to say?

13 MR. FOSTER: No, that is pretty much what I had to  
14 say.

15 MR. SNYDER: Lake, do you want to comment on  
16 that? I haven't seen these data before but they look very  
17 interesting.

18 MR. BARRETT: The way this works is, like you  
19 said, the cartridges are calibrated and tests are run so  
20 that they will absorb the radioiodine and then you can  
21 extrapolate that with a uniform number and so on, and it is  
22 true, it does drop off. I am sure that if at 10 CFM it  
drops down to 40 percent.

MR. FOSTER: It is around 50 at 10 CFM.

MR. BARRETT: Pardon?

1 MR. FOSTER: It is around 50.

2 MR. BARRETT: I know it drops off, but I am not  
3 sure what the drop-off is.

4 MR. FOSTER: I am sorry, 55 at 10 CFM.

5 MR. BARRETT: Fifty-five percent, okay. As it  
6 drops off, if it is only obtaining 55 percent of the  
7 radioiodine they should have multiplied the air-borne  
8 concentration by two. If they were not doing that at the  
9 higher flow rates they were doing it wrong.

10 MR. FOSTER: What about the flow rates above 10  
11 CFM?

12 MR. BARRETT: It is going to come out to something  
13 less than 55. I am not sure what the curve would be. That  
14 is not the right way to do it.

15 MR. FOSTER: I am simply saying that my request to  
16 the NRC is that they seriously consider the possibility of  
17 another draft statement. I think it is very important that  
18 we look into these matters. Some of the biological factors  
19 haven't been completely addressed. Several of the factors  
20 that my colleague John Cabler mentioned have not been  
21 correctly addressed. That is my point.

22 MR. BARRETT: Let's finish on the last one. What  
I would like to do is talk to you later and talk more  
extensively if you have some allegations that it wasn't done  
right and if you have information, because I don't recall

1 that being brought up.

2 Another thing was as a back-up to this what we had  
3 was that as workers when they left there was a whole body  
4 count. Were you whole body counted when you left the plant?

5 MR. FOSTER: Yes, I was.

6 MR. BARRETT: Okay. This is a back-up in case  
7 there were problems. Did you have a problem with more  
8 iodine being suggested at this point?

9 MR. FOSTER: No.

10 MR. BARRETT: Well, that was one of the back-ups  
11 that we do have them do and people are whole body counted.

12 MR. FOSTER: As you well know, radioiodine has a  
13 half life of eight and a half days.

14 MR. BARRETT: How long a period was it before you  
15 were whole body counted?

16 MR. FOSTER: I was at the plant for six months.

17 MR. BARRETT: And you were whole body counted just  
18 when you left?

19 MR. FOSTER: I was whole body counted when I  
20 left. They started doing weekly counts after I think July  
21 sometime. Before then there was no whole body counts.  
22 There was only a whole body count if you were suspected of  
contamination, as you well know since you were there.

At a point at about I would say sometime in July  
perhaps, and maybe in August, they started doing weekly

1 whole body counts.

2 MR. BARRETT: Okay. Well, if you have specific  
3 things on your mind we will talk about it and let you know  
4 what our position is. They should have been doing it the  
5 right way. If they weren't, let's talk about it.

6 MR. FOSTER: My emphasis is on the fact that  
7 sometimes the data is completely accurate and sometimes  
8 there are problems and I believe this is the case with the  
9 environmental impact statement.

10 (Applause.)

11 MR. SNYDER: I would like to make one comment on  
12 that. I think your extrapolation and logic may or may not  
13 be correct, but recognizing that you were talking about data  
14 that a licensee and a manufacturer was using, the PEIS to a  
15 large extent represents the data that the government  
16 independently has developed.

17 Why don't we go to the next question.

18 MR. CAWOOD: Next question.

19 MS. GUSTIN: My name is Karen Gustin from the  
20 Clean Water Action Project. As you can see, we have a few  
21 friends here that would like to say something to you from  
22 the Union of Concerned Crabs. They would like to tell you  
something.

(Applause.)



1           (Three members of the audience in costumes sang  
2 the following song:)

3           Our friends, crabs, rock fish, sea nettles, clams,  
4 oysters, turtles and others have asked us to come here to  
5 tell you we don't want radioactive water dumped in our-home,  
6 the Chesapeake Bay. We live there, we eat there and we  
7 sleep there. We have for a very long time and we hope for a  
8 long future.

9           It is the human beings' responsibility to protect  
10 the planet and the creatures dependent upon it who have no  
11 voice in your conference rooms and no stock in your  
12 corporations.

13           We ask you the representatives of the Nuclear  
14 Regulatory Commission to take our message to your leaders in  
15 Bethesda. Don't dump the water.

16           (Applause.)

17           MR. CAWOOD: Any further questions, please?

18           The lady right there.

19           MS. PALMITY: My name is Tanya Palmity. I am a  
20 health physicist. I have a rather simple question. I was  
21 just wondering what the activity was in the low-level tanks?

22           MR. SNYDER: Which tanks?

          MS. PALMITY: The low-level, the ones that you are  
planning to do.

          MR. SNYDER: The specific activity of the water.

1 I will have to ask Oliver Lynch for that number so I can  
2 give it to you accurately.

3 MS. PALMITY: I just wanted an average. I know it  
4 is rather large.

5 MR. SNYDER: The tritium is about one microcurie  
6 per cc as I recall on the average. Each tank will vary  
7 somewhat. I think that one is covered by the way in the  
8 question and answer docket.

9 MS. PALMITY: Yes, I got here later and I didn't  
10 have one.

11 MR. SNYDER: I would suggest that you might want  
12 to take one on the way out.

13 MS. PALMITY: I would just like to make a  
14 comment. I understand that he said that they had posted  
15 signs saying that the iodine levels were low enough that  
16 they would not require a respirator.

17 At no time is anyone allowed to smoke in a  
18 restricted area. It is an NRC violation. So the workers in  
19 there were not supposed to be smoking anyway whether or not  
20 they were allowed to wear respirators at the time or not.

21 MR. SNYDER: I agree with that a hundred percent.

22 MR. PALMITY: So it was a workers' violation.

They had no business smoking period.

(Applause.)

MR. FOSTER: Certainly I agree with that a hundred

1 percent also. I am simply saying the data was erroneous and  
2 that they were fools to do it. I would never do it myself.  
3 But since the data was posted they used that apparently to  
4 assume it was all right. For all I know, the levels might  
5 have been all right. Nobody knows. That is the problem,  
6 nobody knows.

7 MR. SNYDER: Well, in any case they shouldn't be  
8 smoking in a radiation area independent of what the levels  
9 were.

10 MR. FOSTER: Absolutely. That is absolutely true.

11 MR. SNYDER: That is certainly well posted.

12 MR. CAWOOD: The lady at the end.

13 MS. FRADKEN: My name is Bonnie Fradken and I work  
14 with the Communist Workers Party. I am not an expert, but I  
15 know when the wool is being pulled over my eyes.

16 (Applause.)

17 I am getting really tired of hearing about how the  
18 NRC is really concerned about the public health and  
19 well-being, and I think a lot of people in here have been  
20 think this, and I am going to say it.

21 Cleaning up the Three Mile Island Nuclear plant  
22 doesn't mean they are cleaning it up for the interest of  
us. It means cleaning it up to start it up. That is what  
it is all about and I think a lot of people here know that.

Also, the NRC isn't a neutral body concerned about

1 the interests of the American people. I am just saying that  
2 I am tired of having this run down on me every time you  
3 speak. I think all of us know that Three Mile Island showed  
4 where you stand.

5 The NRC is just covering for the fact, you know,  
6 that the monopoly corporations that are profiting from the  
7 nuclear industry are going to be allowed to continue to  
8 profit. The questions that people have asked haven't been  
9 answered sufficiently because you don't intend to answer  
10 those questions.

11 Not only do the monopoly corporations want the  
12 profit, but the government is preparing for World War III.  
13 For World War III you need a large nuclear stockpile.

14 The Communist Workers Party under the leadership  
15 of Jerry Tongue says that in the 1980's we can be certain of  
16 two things. There are going to be two things that could  
17 happen. One is world war, and that means World War III, or  
18 the other solution is socialist revolution.

19 I believe that the American people are not going  
20 to profit by world war any more than they are going to  
21 profit by the nuclear industry and the system that backs it  
22 up to the hilt.

When workers control this country they are going  
to be putting an end to this nuclear nightmare. That is  
what we are fighting for and that is why I am taking a stand

1 against the nuclear disasters that are being forced down our  
2 backs.

3 All of these nuclear accidents, the burdens are  
4 put on the working people in this country while the  
5 monopolies who are behind them and the government who is  
6 behind them are profiting at our expense.

7 I am really tired of it and I am really tired of  
8 you guys, so-called experts, being paid with our tax money  
9 to try to pull the wool over our eyes.

10 (Applause.)

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1 MR. CAWOOD: Yes, this gentleman here.

2 MR. YOUNG: Thank you.

3 My name is Paul Young. I have here a synopsis of  
4 the NRC report we are discussing here this evening. One  
5 item in the report has not received any discussion during  
6 the course of these hearings.

7 I will read this paragraph to you because my  
8 questions will be on this material. This summary was  
9 written by Lee Tory for a British publication called "New  
10 Scientist" and appears on page 766 of the September 11th,  
11 1980, issue.

12 "Removal of the sump water, expected to be the  
13 most difficult task of the clean-up operation, must be  
14 accomplished before full-scale decontamination and defueling  
15 of the reactor can begin.

16 "According to the NRC report, leakage from the  
17 reactor's primary cooling system adds 550 liters per day to  
18 this spill, that is in the sump, and the continuing rising  
19 water level now poses a hazard.

20 "Some instruments and electric cables have already  
21 been shorted out by the water. Late last month the water  
22 level was a mere 2.5 centimeters below electric motors on  
23 two valves that must remain in operation in order to  
24 maintain the safe cooling of the reactor.

25

1 "Unless the water leakage is ended or it is  
2 transferred to a different location, warns the NRC impact  
3 statement, the present safe status of the plant may  
4 deteriorate."

5 MR. SNYDER: May I respond to that, please,  
6 because I don't want to leave anyone with the impression  
7 that that is anywhere near correct. That is not correct.  
8 The water level is increasing at such a slow rate in a large  
9 area of that building. It is a very simply calculation to  
10 make, but it is on the order of a fraction of a centimeter  
11 per day.

12 The valves that were in question have been opened,  
13 they have operated and they have done what they had to do.  
14 They can be submerged now. So I don't know what the source  
15 of that information is. It is certainly an extrapolation in  
16 the wrong direction of of anything that we have said in the  
17 PEIS.

18 MR. YOUNG: I have a copy of the article if you  
19 are interested.

20 MR. SNYDER: Pardon me?

21 MR. YOUNG: I have a copy of the article if you  
22 are interested.

23 MR. SNYDER: I have heard what you had to say  
24 about the article. That is not correct, and I don't want to  
25 leave anyone with the impression that the leakage of the

1 water is a major problem. I assure you if it were it would  
2 have been processed and transferred by now.

3 I might also point out that we have directed the  
4 licensee and he has come up with an action plan to  
5 continuously move that water if that were in fact a  
6 problem. There is tankage on the island that is available.  
7 It is nuclear grade equipment and it can take the water if  
8 need be.

9 The best place for that water until it is  
10 processed is inside that containment building and not spread  
11 around to some tanks throughout other parts of the plant  
12 because it will unnecessarily expose workers. But if it  
13 does leak, there is the ability to move it.

14 I am sorry, but the article is inaccurate as I  
15 have indicated.

16 MR. YOUNG: What is the current volume in the sump  
17 right now?

18 MR. SNYDER: It runs between 650 to 700 thousands  
19 of water. It can only be estimated within roughly 10  
20 percent error because it is difficult, as you might expect  
21 in a large building, to calculate exactly what the volume is  
22 that is displaced by the equipment that is there. It is  
23 well below any point where there is a problem and there is  
24 years of room. We don't intend to leave it there for years  
25 but it is not a real hazard.



1 I think it is just that kind of reporting that I  
2 have to do my best to counter because it is just very  
3 deceptive and I think it concerns people unnecessarily. I  
4 think there are other things to be concerned about at the  
5 plant, but that is not one of them.

6 MR. YOUNG: At the Havre De Grace meeting the same  
7 question was raised. I did not attend that meeting, but the  
8 respondent said that the water level was above these motors  
9 at the time.

10 MR. SNYDER: Well, it hasn't reached the motor  
11 level to my knowledge, and even if it had it is not important  
12 because long before that point those valves would be  
13 operated. They would need to be opened in order to bring on  
14 another coolant system as a back-up. They have functioned  
15 satisfactorily. I do not believe those valves were under  
16 water.

17 MR. YOUNG: Are there any present contingency  
18 plans for an emergency should this water have to be  
19 discharged?

20 MR. SNYDER: It wouldn't have to be discharged  
21 untreated under any conditions whatsoever. Rest assured of  
22 that. As I mentioned earlier, we directed the licensee back  
23 in the summer to come up with a contingency plan as to where  
24 on the island do you have adequate tankage within the two  
25 plants, both TMI-1 and TMI-2, adequate containers for this

1 volume of water. They have submitted to us a plan, and we  
2 have it under review and it looks like an adequate plan, for  
3 the ability to move water from one place to another and  
4 there is plenty of space to do that.

5 MR. YOUNG: Thank you.

6 MR. CAWOOD: Let's go way back. Yes.

7 MR. GLOSS: My name is Thomas Gloss. I use the  
8 bay a lot, the upper bay. I fish the upper bay almost  
9 exclusively. The bay is hanging on by threads now,  
10 especially the rock fish industry which benefits everybody  
11 up and down the East Coast.

12 The grass beds, the small microscopic life that  
13 the fry feed upon have enough problems with pollutants in  
14 the upper bay, let alone dumping this from up in the  
15 Susquehanna River up in Pennsylvania and bringing it down  
16 here.

17 We have had enough problems with not getting an  
18 adequate flow coming over the Susquehanna Dam in previous  
19 years. There have been thousands of fish killed and yet you  
20 want to dump water like that in there. I find it  
21 unbelievable.

22 (Applause.)

23 MR. CAWOOD: Yes.

24 MR. DUNN: Good evening. My name is Greg Dunn and  
25 I am here as a private citizen. Early on in your

1 presentaion this evening you mentioned several times that  
2 you have not as yet specifically recommended releasing the  
3 water into the river.

4           You also in that presentation mentioned that the  
5 tritium ladened water that you are planning to recycle it  
6 and use it in part of the scrubbing process within the plant  
7 itself.

8           What I am asking is if you choose not to release  
9 the water what other specific recommendations are you  
10 considering at this point and will that recycling process  
11 impact on those decisions and, if so, how?

12           Let me answer the second question first. The  
13 recycling and the reuse of that water would also include the  
14 reclean-up of the water. So basically the water will end up  
15 in the state that it is in when it makes one pass through  
16 the processing clean-up system. So the answer to your  
17 question is no.

18           There may be some worker dose as the tritium level  
19 reaches some higher plateau and that is one thing that we  
20 are going to have to look at very carefully as the time  
21 progresses because the processing systems do not remove  
22 tritium. There is no known industrial processing system on  
23 a large scale and not a laboratory scale system to remove  
24 the tritium. So that is the issue basically with the  
25 tritium.

1           Would you repeat you first question again. I am  
2 sorry.

3           MR. DUNN: I got the impression from your earlier  
4 presentation that you have at this point repeatedly stated  
5 that you have not come out in favor of dumping the water.  
6 So my question then is what specific alternatives are you  
7 considering and how likely is it that you will choose one of  
8 them?

9           MR. SNYDER: I think each of them are mutually  
10 likely. I wouldn't want to put any odds on any given one.  
11 Now, let me tell you what the alternatives are. I cut short  
12 part of the presentation. I was going to list them all for  
13 you.

14           Basically there are about three different things  
15 you can do with the water. You can either release it to the  
16 air or to the surrounding river. You can contain it on the  
17 island for long periods of time. You can reuse it in the  
18 plant, for example, and contain it on the island. You can  
19 solidify it and make concrete with it and end up with an  
20 enormous concrete block. As I recall the numbers, it is  
21 like 10,000 cubic yards of concrete. Then the question is  
22 what do you do with the concrete? Do you take it off the  
23 island?

24           Another possibility is to take it off in liquid  
25 form, take it off in tank trucks and dispose of it somewhere

1 else. Where else do you dispose of it? Who else wants the  
2 problem. One suggestion that has been made, and it is an  
3 obvious one, is to take it out into the middle of the ocean  
4 and dump it. Ocean dumping I think is a viable alternative  
5 but it is not a popular one. It suffers from some of the  
6 same problems that the dumping of the water into the river  
7 suffers. It does affect the fishing industry. There is no  
8 question about that.

9           So those are basically the alternatives that we  
10 are looking at. If anyone has another good suggestion, we  
11 are open to it. That is the purpose of this whole operation.

12           MR. DUNN: The second part of that question is how  
13 likely are you to choose one of those alternatives and, if  
14 so, which one?

15           MR. SNYDER: Well, some alternative has to be  
16 chosen because the water, even if it just stays on the  
17 island, there will have to be a choice of one of those  
18 alternatives. Some something will happen to the water  
19 either off the island or on the island.

20           I think for myself my view is that the island  
21 should be cleaned up from the accident. It should not be  
22 left up there for a long period of time, especially if it is  
23 left up in a situation where it might possibly leak a long  
24 time from now would be a problem. Now, the half life of  
25 tritium is only 12 years. So it is not the problem that

1 some of the long 30 year half life cesium and strontium  
2 isotopes present.

3           You know, it might be conceivable if you want to  
4 store it until it is at innocuous levels, and innocuous  
5 levels we are usually talking in terms of 10 half lives  
6 which would be 120 years, that is a possibility to store it  
7 for 120 years on the island.

8           MR. CAWOOD: Yes.

9           MR. MALLISH: My name is Bill Mallish, and I am a  
10 resident of Cecil County.

11           I am still a little concerned that we haven't  
12 addressed one issue in the dumping as much as I would like  
13 even though the biologist has talked to us about this.

14           The Susquehanna flats itself where the river  
15 literally ends or becomes part of the Chesapeake Bay, we  
16 seem to have a flow rate problem here. I guess that is why  
17 we formed a giant delta there. We have hundreds of acres of  
18 very, very shallow water which means to me that the river is  
19 dumping the sediments that it carries right there and has  
20 been doing it for hundreds of years.

21           Are we going to, now matter how slowly we would  
22 let the stuff go at Three Mile Island, build up the material  
23 on the Susquehanna flats, which of course is the upper bay  
24 breeding ground. This is where the rock fish spawn. This  
25 is where the young fry survive the dangers of the larger

1 fish eating them or something because it is very shallow and  
2 there is grassland there and they are protected from this.

3           If we dump radioactive material in an area where  
4 the first cells of the first eggs are hatching is this not a  
5 threat to us? Are we in turn dumping most of the radiation  
6 in the womb of the Chesapeake Bay?

7           MR. CAWOOD: Could you show the map to the  
8 audience. They may want to get a look at the map that you  
9 are referring to. Just turn it around there, all the way  
10 around.

11           (Applause.)

12           (Poster of Mr. Mallish is shown to the audience.)

13           MR. MALLISH: The water that is there at low tide  
14 many times, it will expose the shoreland. Twenty-five  
15 thousand acres is covered by this area in the upper bay. It  
16 is very shallow. You can be miles and miles from shore and  
17 be standing in ankle-deep water. It is a very special area,  
18 one that is very rare as far as a giant estuary like this.  
19 I know of no other shallow lands other than some perhaps  
20 marshlands over on the Eastern Shore that would be similar  
21 to this.

22           MR. SNYDER: Let me ask Oliver Lynch to respond to  
23 your question.

24           MR. LYNCH: I had a great deal of difficulty seeing  
25 your diagram. Would you hold it up again.

1 (The diagram is held up by Mr. Mallish.)

2 MR. LYNCH: Thank you very much. I think I have a  
3 viewgraph showing about the same thing.

4 (Slide.)

5 In answer to your question, yes, we are quite well  
6 aware of the flats and the sediment depositions in those  
7 areas. As a matter of fact, the isotope of concern is  
8 cesium 137 in that area, and I will get to that in a minute.  
9 The deposition is limited by what we call a turbidity  
10 maximum. That is an area in which the turbidity is the  
11 greatest and it is covered by the blue area on the map.  
12 Beyond that the radionuclides are not a problem there.

13 Could I have the next slide, please.

14 (Slide.)

15 I don't know if you can see that or not, but  
16 basically that is a slide showing the radiological activity  
17 of cesium 137. I want to point out that cesium 137 behaves  
18 like potassium in the body. It seeks muscle in the soft  
19 tissue. Its biological half life is about 70 days in man.  
20 In fish it is about a hundred days and it attaches itself to  
21 the sediments in the river and the bay. We are quite aware  
22 of that. This is one of the things that we have looked at.  
23 When it attaches itself to the sediments in the bay it is  
24 taken out of the water column.

25 Although some organisms in the sediments may take



1 it up and then put it back out again, it usually remains in  
2 the sediments. It has a long half life of about 30 years.  
3 It would be taken out of the water column as depositions and  
4 sediments.

5 MR. MALLISH: But the fish eggs are basically laid  
6 on the bottom and this is a tidal area which requires water  
7 to flow back and forth across it which churns the fish eggs  
8 into the bottom.

9 MR. LYNCH: We are aware of that. We have taken  
10 that into consideration and it is very important.

11 MR. MALLISH: Well, it concerns me. Thank you.

12 (Applause.)

13 MR. CAWOOD: Yes.

14 MR. STAYMAN: My name is Steward Stayman. I spent  
15 a day or two looking over the draft EIS. I am trying to get  
16 a perspective of the dose rates from a potential release of  
17 the water from the plant into the river. I was very glad to  
18 see one of your charts contained a table showing comparing  
19 the EPA drinking water standards to the levels of  
20 contamination from TMI.

21 I would suggest that you include that in the final  
22 EIS. I would also suggest that you include a comparison of  
23 what the potential controlled release of water from the  
24 clean-up to the river compared to what the release from TMI,  
25 if it was operating normally, what the license from the NRC

1 permitted. I think that that would help give readers some  
2 of the perspective that you have been trying to provide  
3 tonight.

4 I would also like to make two other comments. I  
5 would suggest that further down the road when you are  
6 getting to removal of the high level radioactive material,  
7 if we still do not have at that time civilian high-level  
8 waste storage facilities that because of the special  
9 circumstances of TMI that you not wait until some are found  
10 but that you use military facilities.

11 Thirdly, a very minor point, I just have a  
12 question, in the trucking of the low-level wastes out to  
13 Washington State, will that be done by commercial private  
14 contractors or will that be done by the government?

15 MR. SNYDER: That is strictly a commercial  
16 operation to whatever site might be used for the burial of  
17 low-level wastes and it is an ongoing thing now There are  
18 licensed carriers for that purpose.

19 I appreciate your earlier comments. I think they  
20 are very well taken and they are very constructive. They  
21 will certainly be included in the document. Thank you.

22 MR. CAWOOD: Yes.

23 MR. CLYDE: Thank you. I am glad to have the  
24 opportunity to speak. I would like to address my comments  
25 to the audience as well as to the panel.

1 My name is Joe Clyde and I work at Bethlehem  
2 Steel at Sparrows Point. I am a member of the United Steel  
3 Workers of America, Local 2609.

4 I am very inspired by the amount of technical  
5 research that people have put into this question. I mean I  
6 see a lot of people using their hard earned years of  
7 training for what I hope we all here tonight regard as  
8 social purposes.

9 However, I take exception with the conclusions and  
10 the role that the Nuclear Regulatory Commission is playing  
11 here. I think it is essentially a cover-up of a massive  
12 catastrophe in terms of the way our technology is being  
13 misused.

14 (Applause.)

15 In terms of public comment and public input I  
16 think there are basically millions of people who should be  
17 here tonight or somehow involved in direct input into this.

18 Now, we all know that when we tried to call people  
19 to get them to come out we are dealing with the weather, we  
20 are dealing with the short notice that John Cabler talked  
21 about and we are dealing with people's so-called apathy  
22 which I don't think is apathy. People no more feel  
23 apathetic about who runs this country than they did about  
24 what happens with nuclear power. I think it is a question  
25 of getting information and it is a question of feeling that

1 you can actually do something about it.

2           Now, the thing that inspired me a month ago was  
3 the First National Labor Conference on Safe Energy and Full  
4 Employment that was held in Pittsburgh in which a number of  
5 environmentalists gathered together with hundreds of trade  
6 unionists, in particular over a hundred coal miners, almost  
7 a hundred steel workers, auto workers and many other union.  
8 Included in the gathering was the head of the United  
9 Machinists Association, William Singer, and the head of the  
10 United Mine Workers of American, Sam Church.

11           In the last couple of years the major industrial  
12 unions around the country have made tremendous strides in  
13 the direction of realizing the great danger of nuclear  
14 power. The coal miners in particular played a very  
15 important role at the conference in raising the slogan, Why  
16 Not Coal, and explained that with the new technology being  
17 used to clean up the smoke stacks with the new scrubbers and  
18 the new ways of burning coal, that that indeed is a true  
19 transitional alternative while we move on in a more serious  
20 manner towards solar and real energy conservation.

21           So I would like to encourage people here tonight,  
22 anyone who belongs to a trade union, to be sure and go back  
23 to your unions and try to get them very much much involved  
24 in this struggle and all of my brothers and sisters in the  
25 environmental movement.

1           Please realize there is a powerful movement of  
2 over 20 million people just on the brink of becoming  
3 anti-nuclear en masse and we can't lose a minute in getting  
4 the resources of the labor movement. So let's pull together  
5 as fast as we can because we don't have a day to waste. We  
6 don't know when the next catastrophe will be the last one.

7           (Applause.)

8           MR. CAWOOD: Let's go all the way in the back.

9           MS. SCHNEIDER: Good evening. My name is Cayle  
10 Schneider. I am speaking mainly as a world citizen tonight  
11 concerned about the decisions that you are making is going  
12 to set a precedent for the future generations.

13           The one question I would like to direct to you is  
14 that the Susquehanna River supplies domestic water to  
15 Columbia Borough, the City of Lancaster, Safe Harbor  
16 Village, Holtwood Village, City of Chester, City of  
17 Baltimore, Conowingo Village, Brainbridge Naval Training  
18 Station, include Port Deposit, Perry Point Veterans Hospital  
19 and Havre De Grace.

20           Section 3.19 of Draft PEIS states that the  
21 Susquehanna's use as a community water supply is very  
22 limited. Please explain.

23           (Applause.)

24           MR. SNYDER: I am going to ask Mr. Lynch to answer  
25 that.

1 MR. LYNCH: The statement is in error.

2 MS. SCHNEIDER: The statement in the PEIS?

3 MR. LYNCH: That is correct.

4 MS. SCHNEIDER: One of the man;.

5 (Applause.)

6 MR. PRIOR: My name is Bruce Prior. I was just  
7 curious if this is only one out of several alteratives and  
8 if you were holding similar meetings in other parts of the  
9 country where they were considering dumping this material?

10 VOICE: Louder.

11 MR. PRIOR: I was wonder if there were similar  
12 meetings to this being held in other parts of the country  
13 where they were considering dumping the material or was this  
14 just something that Senator Sarbanes had asked for?

15 MR. SNYDER: Let me answer the question. As far  
16 as my involvement, I am responsible for NRC's role in the  
17 clean-up of TMI-2. I am not sure whether we are in fact  
18 holding other meetings like this. I doubt it very much.

19 We have held this particular meeting partially at  
20 at the request of Senator Sarbanes and others. As I  
21 mentioned before, we will we will have held by the end of  
22 the comment period further other meetings, three of which  
23 were all in the Maryland area and the balance of which were  
24 in the Pennsylvania area. So this question has been  
25 addressed I think very extensively in many public forums.

1           MR. PRIOR: Well, I submit that you should be  
2 having similar meetings in other areas where you would be  
3 considering dumping. Do you think so?

4           MR. SNYDER: Let me just comment. The public  
5 participation process is somewhat unique because the  
6 situation at Three Mile Island is unique. We have gone  
7 considerably beyond what is normally done by the NRC or any  
8 other agency of government that does licensing of various  
9 activities in the way of getting public involvement and  
10 public participation.

11           The process that works on a normal operating  
12 reactor plant, there is ample opportunity through the  
13 licensing review process. First, there is a construction  
14 permit period and then there is an operator licensing  
15 hearing. In those processes these are intervenors, people  
16 that can show that their interest may be affected by the  
17 operation of the plant. So there are local people involved  
18 in oral proceedings before licensing boards which are set up  
19 by the NRC to make decisions.

20           So, to answer your question, there is a public  
21 process on any major action that the NRC would allow when  
22 you license a particular plant. Then there are generic type  
23 hearings, too, on questions similar to this. So there are a  
24 number of avenues for the public participation.

25           MR. PRIOR: Is that going to be a policy? You

1 know, since this is one single problem, will you be meeting  
2 with the population of the area wherever it is going to be  
3 dumped, you know, or wherever it is planning to be dumped?

4 MR. SNYDER: I am sorry. I guess I don't  
5 understand your question. Could you rephrase it perhaps?

6 MR. PRIOR: You said that you may be having  
7 meetings in other parts of the country; is that true?

8 MR. SNYDER: What I am saying is that prior to  
9 operation or prior to giving a construction permit before  
10 any significant work could occur, say, in another nuclear  
11 power plant, there is this process that I just described.

12 You know, other nuclear plants under their license  
13 do release radioactivity to the environment. I mean, there  
14 is no question about that and there is no great secret. In  
15 fact, we publish the data on an annual basis as to the  
16 quantities involved, these plants that operate in this  
17 country and abroad. There are no truly zero release  
18 plants. It is not physically possible to bottle up every  
19 atom of radioactivity that is at the plant.

20 I think it is a question of, you know, what are  
21 the effects of the release, and, as I say, that is something  
22 that has been extensively investigated over many years of  
23 operating experience at plants in this country, and the body  
24 of best scientific evidence is that there have been no  
25 effects. Now, there are disputants of that, but the bulk of



1 the scientific knowledge is behind that statement.

2 MR. CAWOOD: Let's move on. The gentleman there.

3 MR. JACOBSON: My name is Robert Jacobson. I am  
4 a citizen of Baltimore City and work for the City of  
5 Baltimore and I am here representing the Chesapeake Energy  
6 Alliance.

7 I just want to make two comments on points made in  
8 the blue covered booklet, Answers To Frequently Asked  
9 Questions About Clean-Up Activities and so forth.

10 On page 25 of the booklet you discuss transport by  
11 truck of the nuclear wastes from Three Mile Island and you  
12 state that all the states along the way from Pennsylvania to  
13 Washington are notified prior to these shipments and that  
14 some states provide police escorts.

15 Since this was published in September you  
16 neglected to mention that last spring the Federal Department  
17 of Transportation came out with proposed regulations that  
18 would change all of that. Basically it would deregulate  
19 truck transportation of any radioactive materials so that  
20 they could virtually go over any highway, any toll facility  
21 and through any state without notifying any emergency  
22 response agencies and go through any locality at any time of  
23 day. I see this as nothing but dishonest that this wasn't  
24 included. While taken at face value what you stated here is  
25 true now, but I believe this month the Department of

1 Transportation is going to decide on those changes. They  
2 were proposed last spring and they were published in the  
3 spring. Final comments were in by June 30th and they are to  
4 be decided on this month.

5 MR. SNYDER: Okay. We will have to take a look at  
6 that. To be honest, I was not aware that there were such  
7 proposed regulations.

8 MR. JACOBSON: I find that hard to believe since  
9 it is from the Federal Department of Transportation and it  
10 does involve the Nuclear Regulatory Commission.

11 If these regulations are changed then obviously  
12 you have to significantly change your predictions on the  
13 number of accidents which you assume would be between two  
14 and seven accidents which is significant enough. I am  
15 certain that with those restrictions being lifted they will  
16 be significantly higher.

17 My second comment. It seems to me that the blue  
18 booklet has two purposes. One is to inform the public on  
19 what the various options are. The second is to reassure the  
20 public.

21 Personally, and I am commenting on pages 30 and  
22 31, I am not reassured by the fact that there will be only 3  
23 to 10 cancers in workers from this clean-up process and  
24 between 7 and 20 genetic defects in children of the clean-up  
25 workers which are the estimates that you make. And

1 I am certainly not reassured by your putting this in the  
2 context of one in five Americans getting cancer and one in  
3 seventeen people in the country passing on a genetic  
4 defect. To me that is the height of cynicism, particularly  
5 when it is largely recognized that the majority of those  
6 cancers are caused by industrial factors.

7 (Applause.)

8 I would like to make one last comment. Again, I  
9 would agree with everyone who said that there should be  
10 public hearings on this clean-up process every step of the  
11 way. And in the future 12 days, which was the notice given  
12 for this hearing and the one in Havre De Grace is just not  
13 adequate.

14 (Applause.)

15 I think you are well aware of that and that is why  
16 there was 12 days.

17 (Applause.)

18 You say you are glad to see the large turnout for  
19 tonight and, believe me, that is only due to the fact of  
20 some very well organized groups in this area.

21 (Applause.)

22 MR. CAWOOD: Concerning the transportation  
23 problem, the counsel for the NRC, Mr. Chandler, is not here  
24 tonight, but I think the point is obviously interestingly  
25 raised and I will personally follow it up with a letter to

1 him concerning that item. I certainly have no personal  
2 knowledge of it myself.

3 The gentleman right here.

4 MR. REFF: My name is Morton Reff. I am a  
5 citizen, voter and fisherman. I have two areas of concern  
6 and two basic questions.

7 No. 1, I was impressed with the data, the  
8 statistical data on the effect of a processed discharge,  
9 discharge of processed water in the Chesapeake. I was  
10 really very impressed with all of the specific effects on  
11 the various fish, the various chemicals.

12 I didn't hear at all any doubt on the part of the  
13 speaker in terms of question, is there that much surety that  
14 a fish, any fish in the Chesapeake, doesn't act as a filter  
15 and won't maintain various levels of any of the chemicals  
16 that you have described? Is there any doubt at all is my  
17 question.

18 MR. SNYDER: Let me ask Oliver Lynch or Clarence,  
19 whoever would choose to answer that question.

20 MR. LYNCH: The deposition and concentration of  
21 radionuclides in fish has been a phenomenon that has been  
22 studied for over 30 years, particularly with radionuclides.

23 It is not a question of doubt. It is more of a  
24 question of being more sure about what they will contain.  
25 There will be some that will actually concentrate the

1 radionuclides.

2           MR. REFF: Do you have any data on residual  
3 effects of the chemicals; in other words, long-term effects  
4 of the chemicals on the fish?

5           MR. LYNCH: Of the chemicals or of the  
6 radionuclides?

7           MR. REFF: I am not a scientist, sir, whatever is  
8 discharged in the bay.

9           MR. LYNCH: All right. You can track the  
10 discharges by the fact that they are radioactive.

11          MR. REFF: I know you can track them.

12          MR. LYNCH: Excuse me, can I please finish. All  
13 right. If they were not radioactive you would not be able  
14 to detect those levels of cesium 13 --- or cesium period,  
15 because they are not radioactive, with all the other cesium  
16 that is coming the river. It is because it is radioactive  
17 that it actually can be tracked and be detected. It would  
18 otherwise be lost in the background, completely lost because  
19 of the natural cesium and the natural strontium and all the  
20 other natural radioactive elements that are in that river.

21          MR. REFF: I understand that you can track them.  
22 You are saying that it is a good thing.

23          MR. LYNCH: There would be no effect from this  
24 small amount.

25          MR. REFF: Okay. I have one other question. In

1 this booklet, that I think was very well done, by the way,  
2 on page 12 you have eight basic alternatives. On page 13  
3 you have eliminated all but four and basically one has been  
4 discussed today.

5           Why can't you combine a couple of alternatives? I  
6 noticed that in computing the solidification alternative you  
7 indicated that it would end up as 10,000 cubic yards. If  
8 you evaporate it first you would reduce your volume by  
9 1/30th, according to your own figures. That would end up  
10 with less than 400 yards, 400 cubic yards and then solidify  
11 it and then dump it in the middle of the ocean.

12           I don't see why you are hung up only on one  
13 alternative. It is either discharged process, vapor, forced  
14 injection or holding it at TMI. And holding it at TMI for  
15 60 years is ridiculous.

16           In other words, why can't you combine the  
17 alternatives? Why are you hung up on only one?

18           MR. SNYDER: That is really a very good comment.  
19 I must say that we are looking at combinations of  
20 alternatives at this point.

21           The question of evaporation may not be an issue  
22 for people in Baltimore or Havre De Grace, but I think it is  
23 an issue for people locally. That is clearly the  
24 objective. There will be some local off-site releases that  
25 will be released to the atmosphere, whether you allow it to

1 naturally evaporate or you use forced evaporation and heat  
2 the water, or something like that. The volume reduction is  
3 in fact a principle that is used for disposal of radioactive  
4 wastes.

5 MR. REFF: Then I would recommend respectfully  
6 that you process, then evaporate, then solidify and then  
7 dump.

8 MR. SNYDER: Thank you for your comment.

9 (Applause.)

10 MR. CAWOOD: The gentleman there.

11 MR. TAYLOR: Hello there. My name is Michael  
12 Taylor. First of all before I get underway here I would  
13 like to make two points to previous speakers.

14 The first one is to the representative of the  
15 Communist Workers Party. The fact that you men are up here  
16 going through this tonight proves that you are at least fair  
17 about giving us a chance to speak.

18 The second point goes to the union representative  
19 who was talking about coal power. I think if you do your  
20 reading up on acid rain, you are going to see that acid  
21 rainfall from coal-fired plants can in the long-run be a  
22 heck of a lot worse than some of the things that these men  
23 up here are contemplating.

24 My comment tonight is I believe it is time for the  
25 people of Maryland to take a stand on the issue of nuclear

1 waste. I am here on behalf of myself, my family and the  
2 unborn child that my sister is carrying. What I have to say  
3 I believe is brief and to the point.

4           How you can say that dumping of nuclear wastes  
5 into the Susquehanna River causes no threat to the people of  
6 Maryland is beyond me. I do not want my family and children  
7 to die or to become ill from the NRC's incompetence. The  
8 river feeds into the bay. If it is so unsafe why not leave  
9 it at Three Mile Island, or better yet shut down the reactor  
10 permanently.

11           (Applause.)

12           I would rather move from the state than witness  
13 the results of the stupid actions the NRC is considering. I  
14 thank you men for letting me speak tonight, and you have got  
15 to find another way to get rid of this stuff. Don't put it  
16 in Maryland. I have read this blue book and I don't believe  
17 parts of it. I just hope the river is safe in the spring.

18           Thank you.

19           (Applause.)

20           MR. CAWOOD: Yes, there.

21           MS. COBLER: My name is Virginia Cobler. I am  
22 from the Maryland Ad Hoc Committee For Three Mile Island.

23           I would like to know why does Metropolitan Edison  
24 continue to spend significant amounts of money and time in  
25 constructing a submerged demineralizer system when the EIS



1 is still in draft form? There is no reassurance that this  
2 system will be approved as best to protect the environment  
3 and health and safety of the public. Will this expenditure  
4 prejudice the NRC's decision as to which alternative for  
5 clean-up of the highly radioactive water will be best?

6 Thank you.

7 MR. SNYDER: Let me comment. The easy answer to  
8 the second question is that it won't influence us. We have  
9 already advised the licensee both in early June and in  
10 August that his proceeding with that system prior to our  
11 completion of the environmental review process or making the  
12 decision on what would be an acceptable system is clearly at  
13 his risk. He has chosen to proceed at his risk and that is  
14 his option. That is his plant.

15 The restriction that exists on the licensee is  
16 that he cannot operate that in conjunction with the reactor  
17 plant without our approval. That is the regulatory hold  
18 that we have on him.

19 As far as building that system, it doesn't affect  
20 the safety one way or the other of the plant and therefore  
21 he can proceed. It is the same as he built a new  
22 administration building on the island. We had nothing to  
23 say about that. That was his choice also.

24 But as far as the system itself, it is a system  
25 that is proven in practice that it is an accepted method of

1 clean-up of the water. Technically what he is doing is not  
2 completely ridiculous on his part. I assure you that a  
3 licensee in that condition doesn't commit himself to a  
4 multi-million dollar system if he doesn't have some  
5 assurance that it will work.

6           It is going to be our job to evaluate that system  
7 against alternatives, and I can assure you of the fact that  
8 there are some costs there isn't going to affect me one iota  
9 in making the recommendation to the NRC Commissioners as to  
10 which way to go.

11           MR. CAWOOD: Okay. Let's try here.

12           MR. WALLACE: My name is Tony Wallace and I would  
13 like to make a modest proposal.

14           Given that tritium cannot be removed by any  
15 feasible methods, and given that the radiological effluent  
16 released by the TMI site will have an insignificant, even  
17 undetectable effect on the environment, therefore in order  
18 to minimize the clear and present danger of psychological  
19 stress to the general population, I propose that a control  
20 group of fewer than 15,000 nuclear power advocates can serve  
21 as the environmental processors. These would be strictly  
22 volunteers. They could divide the 750,000 gallons of  
23 contaminated water into an equal share of, say, 55 gallon  
24 drums. Surely you could find 15,000 dedicated advocates of  
25 nuclear energy, maybe the shareholders, who would drink this.

1 (Applause.)

2 My question is if the water is going to safe, if  
3 the effluents are supposed to be minuscule, why don't people  
4 simply take gallon jugs home? Why are we worried about  
5 trucks breaking down on the highway? That would just spill  
6 off the highway into the ecosystem just like dumping it into  
7 the river. You would think the trucks could be open-bodied  
8 pick-ups driving along and spill it out. They could drive  
9 in all directions. They could drive to New York City,  
10 California, they could just spill the water out over 3,000  
11 miles in any direction.

12 The fact that the water is just going to be  
13 processed and received directly into the river suggests to  
14 me that it is the cheapest way. And when you say feasible,  
15 removing tritium, is that economic or is that an engineering  
16 task?

17 MR. SNYDER: To our knowledge, there is no  
18 large-scale available system to remove tritium from water.  
19 Tritium chemically is identical to H O. So there is no  
20 large-scale system. It is separated in a laboratory scale  
21 but not on a large industrial scale that would be involved  
22 in over 400 million gallons of water. So the normal  
23 practice in nuclear power plants both in this country and  
24 abroad is to dilute it and to release it. That is the  
25 solution for tritium. I am not saying that is the solution

1 here however.

2 MR. CAWOOD: We will take your questions one at a  
3 time. Way in back there.

4 MS. POLINSKY: My name is Diane Polinsky and my  
5 question is to Mr. Snyder. The comments on the statement,  
6 they are addressed to you?

7 MR. SNYDER: Yes, to me and my office, that is  
8 correct.

9 MS. POLINSKY: I want to know on a ratio how many  
10 comments have you gotten in support of dumping the tritium  
11 water?

12 MR. SNYDER: We have received a total of 50  
13 letters with comments. I am not sure what the answer to  
14 your question is. We have just received these, and I don't  
15 think we have really gone through an analysis of all these  
16 letters.

17 One final comment. I have never heard of anybody  
18 at any of these meetings, and I have been coming for over a  
19 year, stand up and say that they think that the tritium  
20 water belongs in the Susquehanna.

21 So if you care about the democratic process at  
22 all, we shouldn't even be here still talking about this  
23 because it should be settled.

24 (Applause.)

25 MR. SNYDER: It is about 98 percent against and

1 two percent for.

2 There are two gentlemen in the back who think  
3 release of tritium into the Susquehanna isn't such a bad  
4 idea after all.

5 MS. POLINSKY: Well, two gentlemen in the back out  
6 of all the other people here, including people that have  
7 left, I think is a statement within itself.

8 (Applause.)

9 MR. SNYDER: Is there any indication that we are  
10 not listening?

11 MS. POLINSKY: Listening and paying attention are  
12 two different things.

13 MR. SNYDER: Is there any indication that we are  
14 not paying attention?

15 MS. POLINSKY: Yes.

16 MR. SNYDER: Could you please enlighten me on  
17 that? This is our 30th meeting on this subject. I hear  
18 you. I hear you loud and clear. I have heard all the other  
19 people on the subject, and I am well aware of it. I started  
20 out the statement by making it clear that I understand that  
21 the release of the water into the Susquehanna River is a  
22 concern of practically everybody here. I said something  
23 like that. Give me the benefit of the doubt in  
24 understanding what you are saying.

25 MS. POLINSKY: We will ultimately find out when we

1 find out what happens to the water how well you have heard,  
2 and the way things look I think that is going to speak for  
3 itself in what happens.

4 MR. SNYDER: I think you are prejudging a situation  
5 in which no decision has been made.

6 MR. CAWOOD: That gentleman right there.

7 MR. ADAMS: My name is Bob Adams and I am a  
8 biochemist. Basically my comments have to do with the  
9 nature of radioactivity. The way that the radioactivity has  
10 been presented it has been in terms of concentrations and  
11 that is really misleading to the people of the nature of  
12 radioactivity.

13 It is not so much the concentrations of the  
14 radioisotopes, there are many other considerations, such as  
15 the half life which I don't know if everybody knows --

16 VOICE: Louder.

17 MR. ADAMS: I don't know if everybody knows what a  
18 half life is, but it is considered to be a time for half the  
19 amount of the substance to no longer be there which we call  
20 decay. So if like you have a hundred atoms of a substance,  
21 the half life is when you have 50 atoms of that.

22 There are other things to consider like the dose,  
23 which is a concentration at a distance. Like the tritium,  
24 it gets incorporated into your DNA. So you can have a very  
25 small amount of tritium and it can cause great damage. In

1 fact, many scientists believe that tritium is the most  
2 dangerous isotope there is.

3           Also, there is a great controversy among  
4 scientists over the safe level of radioactivity. In the  
5 National Academy of Science report on low-level radiation  
6 there is a wide range of what they consider to be safe doses.

7           As far as cancer is concerned, it just takes one  
8 single vent for one alteration for cancer to occur. So  
9 there is really no safe level of radiation for anyone. But,  
10 as I said, there is a great controversy among scientists  
11 over what a safe level is, and this is not presented in the  
12 report. I haven't read the whole report so I don't know if  
13 it is or it isn't. But there is this big controversy and it  
14 should be pointed out in the report that not all scientists  
15 feel that there is one safe level of radiation.

16           MR. BARRETT: First of all, you asked if we take  
17 into account the different half lives of the radioactive  
18 isotopes, and also about some that will accumulate in the  
19 body and those that will not. The answer is yes, we did.  
20 The dose number of 1.6 millirem was up there and it is all  
21 discussed in the report. It is taken into account, like  
22 krypton 85 or strontium 90. That is all taken into account  
23 in those numbers.

24           You also said what is a safe level. You are right  
25 about the National Academy of Science. There is no such

1 thing as an absolute and perfectly safe zero risk level.  
2 There is no such thing in life. We did put the numbers in  
3 there. I think it was like two in seventeen million or  
4 something like that. The numbers are there, and that is  
5 based on the recommendations that the National Academy of  
6 Science stated in their review reports. Actually, we took  
7 the upper range of that.

8 MR. ADAMS: You mean the lower range?

9 MR. BARRETT: There is a lower range which is  
10 none, there will be no effect.

11 MR. ADAMS: In their report they said that there  
12 is no really safe amount. Some of the scientists feel that  
13 at a very small level you could have a high risk.

14 MR. BARRETT: The risk is relative. Some people  
15 will take more risks in different things.

16 MR. ADAMS: What I am saying is that within this  
17 report there is a big controversy over like three or four  
18 levels in man.

19 MR. BARRETT: That is right.

20 MR. ADAMS: It is not clear, you know, in your  
21 report.

22 MR. BARRETT: We picked the highest.

23 MR. ADAMS: Of course, you picked the high end.

24 MR. BARRETT: The low end would be none. I think  
25 they made a statement that there was no conclusive proof



1 that there was any effects below 100 millirem. We are  
2 talking about numbers of 1.6 millirem. We took the higher  
3 range. We used the upper range in the Bier Report or in  
4 this and we wrote the risk numbers down.

5 MR. ADAMS: Also about the concentrations, when  
6 you talk about concentrations, radiation is not like a  
7 chemical. I mean it is a chemical and it isn't. It has its  
8 chemical properties and it has its radiation properties.  
9 The way that the data seems to be presented is with the  
10 chemical properties taken into consideration. Because if  
11 you just have a few atoms that are radioactive they can be  
12 incorporated into a fish or they in turn can be incorporated  
13 into a human being. There is no scientist that can assure  
14 you that that will not lead to a cancer risk because these  
15 radioactive isotopes are man-made. They are produced by our  
16 society and normally we would not be exposed to them at all.

17 MR. BARRETT: That is true that they are man-made,  
18 but chemically they will behave as other cesium and  
19 strontium ---

20 MR. ADAMS: But they are aren't strictly treated  
21 as a chemical. You have the radioactive properties, which,  
22 you know, are determined by dose and distance.

23 Just another comment. We were talking about whole  
24 body counts and iodine 31 I think the gentleman was talking  
25 about before. I worked with iodine 25 and that gets

1 concentrated very fast in a person's thyroid. So whole body  
2 counts I think would be totally ineffectual in measure  
3 whether or not a person is exposed to iodine 31.

4 MR. BARRETT: For the whole body count they put  
5 you down in like a tray and they have a scanner that goes  
6 from the top of your head to the bottom of your toes, but  
7 there are different types of whole body counts.

8 MR. CAWOOD: Thank you. Let's try the gentleman  
9 there.

10 MR. BRYAN: My name is Michael Bryan. I am a  
11 resident of California and I would like to address one point  
12 that Mr. Snyder made before about a forced evaporation not  
13 being very relative to the people in this area or not being  
14 of concern to the people in this area but just to the people  
15 in the immediate area of Three Mile Island.

16 It is a concern of mine and I think any decision  
17 that you make is a concern of every person in this country  
18 that cares about this environment and about themselves and  
19 about future generations. I want to make that clear.

20 (Applause.)

21 MR. CAWOOD: Yes.

22 MR. CHARODS. My name is Stan Charods. I would  
23 like to ask Mr. Lynch a question. I wasn't satisfied with  
24 your answer to the question raised earlier about radiation  
25 into the flats. That is a problem because of the spawning

1 grounds, and if that is a problem isn't that significant  
2 enough not to consider that as an alternative?

3 MR. LYNCH: What I indicated was that we recognize  
4 that the cesium comes out of these sediments. The sediments  
5 are deposited on the flats and the flats are a spawning  
6 ground. We recognize the ecological sensitivity of the  
7 area. That is why we have done a lot of looking at the  
8 radiological effects of a discharge. We have looked at it  
9 because it is an alternative and NEPA requires us to look at  
10 the alternatives.

11 What our data indicate is that on the flats cesium  
12 could be detectable in the sediments for a long time because  
13 it has a half life of about 30 years, a radioactive half  
14 life. We are aware that it will be there.

15 As far as its consequence is concerned to the  
16 fish, there won't be a great consequence at all. It will be  
17 relatively innocuous.

18 MR. CHARODS: How do you determine that?

19 MR. LYNCH: Because the activity will be in the  
20 sediment and it will be in relatively low concentrations.  
21 It will be detectable through sophisticated means, but at  
22 far lower levels than could cause damage to the fish.

23 MR. CHARODS: But you say it will be picked up.

24 MR. LYNCH: Detectable is not the same thing as  
25 hazardous.

1           MR. CHARODS: It would be picked up by the  
2 spawning fish.

3           MR. LYNCH: I said it could be recirculated by  
4 organisms within the sediment, like worms and other  
5 crustaceans.

6           MR. CHARODS: Again, it is, whatever, dividing  
7 cells.

8           MR. LYNCH: Well, now you are talking about  
9 individual organisms. If you are talking about fish spawns  
10 and eggs, they are not necessarily in the sediment. They  
11 are deposited on to the grasses, et cetera, above the  
12 sediments.

13          MR. CHARODS: So that wouldn't be a concern.

14          MR. LYNCH: Usually it doesn't affect the fish  
15 eggs above the sediment when the activity is within the  
16 sediment and at low levels. It is detectable but not really  
17 of concern.

18          MR. CHARODS: Thank you.

19          MR. CAWOOD: Yes, the gentlemen there.

20          MR. MONAHAN: My name is John Monahan. I am a  
21 student here in Baltimore and I have a lot of relatives up  
22 in the Pennsylvania area so I have an interest in this as  
23 everybody else in this room does.

24                 Now, after listening for two or three hours of  
25 statistics from the NRC and after having listened to them at

1 other meetings, I am left with the fact that as many  
2 statistics as you give us, we have to take you at your  
3 word. We have to trust you.

4 My question is, why should we trust you? Why  
5 should we trust the clean-up of Three Mile Island? You are  
6 the same people that licensed Three Mile Island in the first  
7 place. Why should we trust you?

8 (Applause.)

9 After the accidental release of radiation at  
10 Calvert Cliffs here in Maryland this very week you couldn't  
11 get the amount of radiation release straight. How can we  
12 trust people who say that since people get radiation anyway  
13 that one or two people dying per state of radiation-induced  
14 cancer won't make any difference? I am glad I am not one of  
15 those people.

16 In a clean-up that will take five to eight years,  
17 how can we trust people that only give the public 90 days to  
18 comment and who ultimately have the ability to accept or  
19 dismiss these comments arbitrarily?

20 (Applause.)

21 MR. BARRETT: The decision I trust is yours.

22 Let me make a remark about the Calvert Cliffs that  
23 he just mentioned. The situation at Calvert was such that  
24 the licensee has several monitors on various parts of the  
25 plant that will alarm if there is a problem. These are set

1 to alarm at very low levels of radiation and when they alarm  
2 they will give press release and everyone is very sensitive  
3 to that.

4           The reason why we can't necessarily tell you  
5 exactly how much it was is it was very, very low, actually  
6 with numbers like .-something millirems for the absolute  
7 worst. It is very quick and it is right at the level of  
8 detectability of the instrumentation.

9           MR. MONAHAN: To further answer my question, why  
10 are we only given 90 days to comment?

11           MR. SNYDER: I think I indicated earlier that as  
12 decisions are made and as licensing amendments are required  
13 there will be a mechanism for the public to participate in  
14 hearings. That will be allowed under our regulations if  
15 licensing amendments are necessary to implement various  
16 changes.

17           Let me assure you that under any circumstances  
18 your voices are heard. I would welcome myself and I am sure  
19 the NRC Commissioners would welcome comments that you have  
20 at any time on the clean-up. If you think that we are doing  
21 something wrong, the Chairman of the NRC will be most  
22 interested in hearing about it. I would suggest that you  
23 correspond with them and have yourself heard that way. It  
24 is very effective.

25           MR. MONAHAN: How is it effective? How can you

1 guarantee that it will be effect?

2           MR. SNYDER: I can't guarantee anything. I am  
3 just telling you from my experiences that our agency is very  
4 responsive in terms of public comments.

5           MR. CAWOOD: The hour is late and we have four  
6 more questions and I want to take them. So this gentleman  
7 right here in front.

8           MR. SPASKEY: My name is Pete Spaskey and I am a  
9 citizen of Baltimore and I have a couple of modest  
10 proposals. I would like to suggest that instead of dumping  
11 in the Susquehanna which is sort of like sweeping it under  
12 the rug or it has the connotation of, you know, getting rid  
13 of it and hiding it, that maybe the water should be left in  
14 the containment building as a monument to a nuclear  
15 disaster, the same way that after World War II there was a  
16 building in Berlin that was left as a monument to World W  
17 II.

18           The second proposal would be that if the wa  
19 couldn't be kept at Three Mile Island for some reason  
20 because they might have some reason they don't want it  
21 there, there is a body of water in Washington, D. C., there  
22 is a Reflecting Pool where there are no fish, no life in it,  
23 and I would imagine it could hold a hundred thousand  
24 gallons, and then put up a little monument. It would  
25 probably be safe to all kinds of life except certain

1 political kinds of political life.

2 Thank you.

3 (Applause.)

4 VOICE: I am not going to tell you my name if you  
5 don't trust me that much. You asked why we thought that you  
6 wouldn't listen to us. I have a tape of an NRC meeting in  
7 Middletown when the question of krypton 85 being vented was  
8 being dealt with. People up there are very upset and were  
9 on public radio. Yet, you went ahead and vented that. I  
10 want to ask you about that.

11 (Applause.)

12 MR. SNYDER: Let me say, first of all, that was a  
13 unanimous decision by the NRC Commissioners who are  
14 Presidential appointees.

15 VOICE: What about the people of Middletown?

16 MR. SNYDER: The people's comments were seriously  
17 considered. They were weighed and the decision was made.  
18 It wasn't put to a vote, if that is what you had in mind.  
19 There are people that are paid to make decisions and the NRC  
20 people are among those.

21 With no exception, to my knowledge, was there  
22 anybody with reputable scientific credentials that could  
23 demonstrate in any way whatsoever that there was a health  
24 risk as a result of that venting of krypton. Now, you can  
25 dispute that. I will point to organizations, including the



1 Union of Concerned Scientists, who are certainly not very  
2 friendly to the nuclear industry or to the NRC, they also  
3 felt that there was no health effect.

4 VOICE: There were three other alternative  
5 possibilities.

6 MR. SNYDER: There were. They would have taken  
7 two years and they would have delayed ---

8 VOICE: How much would they have cost?

9 MR. SNYDER: The cost wasn't a factor but the  
10 delay was.

11 VOICE: Why don't you just tell the truth?

12 MR. SNYDER: I am telling you the truth.

13 VOICE: How much do you make a year to work for  
14 the NRC?

15 MR. SNYDER: Pardon me?

16 VOICE: How much do you make a year to work for  
17 the NRC?

18 MR. CAWOOD: I don't think that question is proper.

19 VOICE: Well, I would like to make two other  
20 comments about putting things in perspective.

21 One way, it seems to me, to put things in proper  
22 perspective in Maryland would be to have a referendum vote  
23 on this question of dumping the water in the Chesapeake.

24 (Applause.)

25 MR. SNYDER: This is your constitutional right to

1 have a referendum on anything you choose. People have had  
2 referendums dealing with many nuclear matters, and there  
3 were a number of votes this past election on the subject. I  
4 don't think the referendum is necessary. We have got the  
5 message pretty loud and clear.

6 VOICE: One other comment about putting things in  
7 perspective. Ask the one person that has cancer, the one  
8 out of five that may have cancer for the profits of the  
9 nuclear industry, ask them how to put that in perspective.  
10 How would you ask a person to put it in perspective?

11 MR. SNYDER: Well, I think all of us, every one of  
12 us here I suspect has got someone in their family that has  
13 had experience with cancer. I can speak from that  
14 perspective myself. I think it is unfortunate that the  
15 cancer rate in the United States is one of the highest in  
16 the world. I don't think that all of the answers are in as  
17 far as the causes go.

18 MR. CAWOOD: Yes.

19 MS. MATTHEWS: I am concerned about the difference  
20 between exposure to radiation and the exposure one's tissues  
21 have to something that is taken into the body. I would like  
22 to know what you know about the effect of tritium on  
23 tissues, when it is taken into the tissues and becomes part  
24 of the body.

25 MR. BARRETT: The dose calculations that are made

1 take that into account. If it is just something like, say,  
2 krypton that is in the air that is breathed into lungs as  
3 opposed to something, let's say, the strontium or the cesium  
4 that would be released to the water and it would go into the  
5 grass and a fish would concentrate it and then you would  
6 eat the fish it may become part of the organs in your  
7 body, that is all taken into account. We made calculations  
8 and you would have to total those up to do that. It is  
9 fairly complex, but that is how it is done. You are right,  
10 it makes a difference.

11 MS. MATTHEWS: Yes, because the one person who  
12 does get that one atom in that glass of water, couldn't  
13 conceivably that one atom cause the cancer? I mean, I am  
14 not talking about statistics but I am talking about one atom  
15 in one glass of water or one atom in a fish that one person  
16 eats.

17 MS. BARRETT: There is a probability of a risk in  
18 that. However small there is a risk. It may be one in a  
19 million or one in ten trillion, but there is a risk.

20 MS. MATTHEWS: I didn't understand because the  
21 maximum exposure or the kind of exposure where you are  
22 standing beside a truck or you are passing by a truck is  
23 quite different from the kind of exposure where you have one  
24 cell in your body maybe for years and that is what is so  
25 dangerous.

1 MR. BARRETT: That is right. There is a  
2 difference between taking it into your body and having  
3 radiation from a passing truck. You are absolutely right,  
4 there is a difference.

5 MS. MATTHEWS: I just wanted to make that clear.

6 VOICE: I just have a comment to make. It is sort  
7 of a story, a personal story. I once was sitting in my  
8 living room about 500 miles from here. I had a little fire  
9 going and some friends over and we were all sitting around  
10 and somebody walks into the room and sits down and everybody  
11 kind of looks at everybody else thinking, well, he must be a  
12 friend. Hey, he is a friend of her's or a friend of  
13 somebody's. It turned out that nobody knew this guy. He  
14 just came in my living room and sat down next to my fire and  
15 warmed himself out of the cold.

16 When I did question him he said, well, the  
17 previous summer you happened to be walking across the street  
18 and said it would be okay in the winter if I went in and  
19 warmed myself by the fire. I let him warm himself and then  
20 I kicked him out.

21 I think you guys probably already realize this,  
22 but the entire country kind of looks at the nuclear industry  
23 as a stranger at the hearth. We are not really sure you are  
24 a friend and we are not really sure you are a foe, but the  
25 more we read and the more we learn about you, we are scared

1 of you. You are sort of the priests of the new religion,  
2 and just keep in my mind, guys. Everybody is watching you  
3 and you have got to perform and one of the ways I would like  
4 you to perform is to get out of my kitchen.

5 (Applause.)

6 MR. CAWOOD: Let's limit it to one or two more  
7 questions if we can because people have got a long way to  
8 go, and that unfortunately includes me, and it is a bad  
9 night.

10 MR. TITEN: My name is Jim Titen and I am a  
11 citizen. It says here on page S-7 for local release to the  
12 river that the water would satisfy the EPA's internal  
13 drinking water standards at the nearest potable water  
14 supply. I would like to know how far away is that from the  
15 water supply, from the source, and what would be the amount  
16 of curies per cc in the water released at the source?

17 MR. BARRETT: Were you looking at what was the  
18 concentration in the water?

19 MR. TITEN: The concentration as it will be  
20 released. I am assuming that it is going to be polluted.

21 MR. LYNCH: The location of the nearest potable  
22 water is the York Haven Dam. It escapes me exactly where it  
23 is, but it is in Section 3 of the statement and also the  
24 concentration of radionuclides in the water itself at the  
25 point of discharge.

1 MR. TITEN: That is close enough.

2 MR. LYNCH: For the one on the slide that I used  
3 with the zeolite resin, the tritium is in Table 6.3-5 of the  
4 statement. If it were authorized it would be 7.9 times ten  
5 to the minus 4 microcuries per milliliter. Cesium 137 is  
6 4.6 times ten to the minus eight. Cesium 134 is eight times  
7 ten to the minus nine. Strontium 90 is 1.5 times ten to the  
8 minus eight. Strontium 89 is 3.5 times ten to the minus  
9 nine, but that strontium 89 number should be down by a  
10 factor of .16.

11 MR. TITEN: Do you have any numbers for the EPA  
12 internal standards for the potable water supply as compared  
13 to the values at the discharge point?

14 MR. LYNCH: I do have those numbers. I can't show  
15 them to you. However, the slide that I showed was in terms  
16 of those numbers.

17 MR. TITEN: It was impossible to read the slide.

18 MR. LYNCH: I am sorry, I thought I read those.

19 MR. TITEN: Well, I would like to see the slide  
20 again.

21 MR. LYNCH: Would you put the slide back on and I  
22 will read it for you.

23 MR. CAWOOD: Why don't you come up afterwards and  
24 get a copy of it. I think that would be the easiest thing.

25 VOICE: Just quick before everybody leaves, will

1 there be another meeting soon for concerned citizens in  
2 Baltimore?

3 MR. CAWOOD: The question was will there be  
4 another meeting for concerned citizens in Baltimore.

5 MR. SNYDER: This is the 30th meeting on this  
6 subject and the third meeting in the Maryland area. The  
7 comment period closes on November 20th. No, there will not  
8 be another meeting specifically on the draft statement.

9 MR. CAWOOD: Okay, the last question.

10 MR. VANZUST: My name is Brent Vanzust. I am with  
11 the Patuxent Alliance. I was just sitting here thinking of  
12 something on the transportation end of it. You talked about  
13 a person standing three feet away from the truck for three  
14 minutes gathering about three millirems, and I was just  
15 curious about this poor sucker that is driving the truck for  
16 eight hours that is three feet away.

17 MR. BARRETT: That is in the regulations as to  
18 what the dose rate is in the cab. It cannot exceed two  
19 millirem per hour. The average cab at the site is like two  
20 millirem per hour and that would be within the occupational  
21 limits.

22 MR. VANZUST: But doesn't that kind of conflict  
23 with the three millirem for three minutes?

24 MR. BARRETT: He is an occupational worker. He  
25 volunteered for that and he decided to drive that truck and

1 he is treated like any other radiation worker as opposed to  
2 a member of the public who has no choice in the matter.

3 MR. VANZUST: When you are driving down the road  
4 you tend to follow trucks for fifty miles two or three hours  
5 down the road. I know I do that in bad weather just  
6 following the truck. Now, not all these trucks are as well  
7 marked as you mentioned.

8 MR. BARRETT: That is what the law is and everyone  
9 that leaves TMI is checked if he has the right signs on.  
10 That I will guarantee you.

11 MR. VANZUST: I am just curious because, you know,  
12 three foot away from the truck is not that unnatural I don't  
13 think going down a highway.

14 MR. BARRETT: Three feet. Going sixty miles on a  
15 highway I would stay that far away myself.

16 MR. VANZUST: Well, if you are in the lane next to  
17 that truck, think about it. You may not want to do that. I  
18 tend to go three lanes around them. It is just a small  
19 point.

20 MR. CAWOOD: Thank you so much. On behalf of the  
21 people of the State of Maryland I request that you continue  
22 your interest and your comments in this vital work.

23 Thank you.

24 (Applause.)

25 (Whereupon, at 10:50 p.m., the public meeting  
concluded.)

\* \* \*



NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

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In the matter of: Public Meeting - Clean-up on TMI Unit II

Date of Proceeding: November 17, 1980

Docket Number: \_\_\_\_\_

Place of Proceeding: Baltimore, Maryland

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)