O.K. - JTC

NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

THREE MILE ISLAND
SPECIAL INQUIRY DEPOSITION

DEPOSITION OF: THOMAS M. GERUSKY

Place - HARRISBURG, PA.

Date - September 19, 1979 Pages 1 thru 59

Telephone:
(202) 347-3700

ACE - FEDERAL REPORTERS, INC.

Official Reporters

444 North Capitol Street
Washington, D.C. 20001

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION'S

TMI SPECIAL INQUIRY GROUP

(Oral deposition of THOMAS M. GERUSKY)

APPEARANCES:

NRC SPECIAL INQUIRY GROUP:

ROBERT CHIN, ESQUIRE
MALCOLM ERNST
FREDERICK HERR
ROBERT SHAMBERGER
PETER SICILIA, JR.

TAKEN AT:

HOLIDY INN
2nd & Chestnut Streets
Harrisburg, Pennsylvania

1:00 p.m.
Wednesday, September 19, 1979

I N D E X

EXHIBITS

PROCEEDINGS

THOMAS M. GERUSKY,

was called as a witness and, having been duly sworn, was examined and testified as follows:

BY MR. ERNST:

Q Please state your full name and title for the record.

A My name is Thomas Michael Gerusky. I am the Director of the Bureau of Radiation Protection, Pennsylvania Department of Environmental Resources.

(Exhibit No. 1 marked.)

MR. CHIN: I would like to put into the record a letter from the NRC to you and put it into the record as Exhibit No. 1. Is this the document?

THE WITNESS: Yes.

MR. CHIN: Do you understand the information set forth in this letter including the general purposes of this inquiry and the fact that you may have an attorney present if you desire and the fact that the information may eventually become public?

THE WITNESS: Yes.

MR. CHIN: Are you represented by counsel today?

THE WITNESS: No.

MR. CHIN: I would like to note for the record that Mr. Gerusky is not represented by counsel today.

Mr. Gerusky, if at any time during the interview

you feel that you need counsel or have counsel present, please advise and we will adjourn the interview to give you an opportunity to make arrangements. Is this procedure all right with you?

THE WITNESS: Sure.

MR. CHIN: I would like to note here as Exhibit No. 2 a resume of two pages entitled "Thomas M. Gerusky." Is this the document?

THE WITNESS: Yes, it is.

(Exhibit No. 2 marked.)

MR. CHIN: Thank you.

BY MR. ERNST:

Q Mr. Gerusky, the first question we have, I guess, relates more to the general responsibilities of BRP at TMI and also the interphases subsequently with DOE and EPA and HEW. And regarding the collection analysis and disemination of radiological data, and maybe this is a time-dependant question. Who is so-called in charge and how was the effort coordinated?

A Well, during the first two days of the accident, the data that came from our staff and from the DOE staff, the RAP team, was collated by our office. But on about Saturday, I believe when we realized that the -- that would be the 30th -- when we realized the data was just too much to handle and beginning to be too much to handle, then our office, we

requested the DOE team which was set up at the Harrisburg-York Airport, to collate all the data from all the agencies and hold a briefing and -- daily on all the data that they had obtained during the day. That was done and carried out for approximately the next three to four weeks until they left.

Q Based on your experience in this area, is there a more effective process for handling this function, or would there be a better way from the start to handle it? Or do you have any general observations?

A Well, I don't think we got very much data from the utility and/or the Nuclear Regulatory Commission. The input into the other -- into the pool of all the data wasn't very great from the utility and the NRC people, mainly because they were not there to do the kind of environmental surveillance work that -- that the other agencies were.

The aircraft data, for example, all of the utility and of the NRC was not made available. Only the aircraft data from DOE was made available. So there is some outstanding data even though all the data is all supposed to be reported to EPA and they have just come out with a document that collates all the data. I haven't gone through all six volumes. I have the first three volumes. There are some errors, but I don't think all the data is there that the utility and NRC collected particularly. I haven't gotten to the point in the data about DOE information, so I can't comment on that either.

I don't know what they submitted yet.

Q Were you not getting data from Met-Ed and the NRC during the first three days?

A No, we were getting data over the phone, and we have -- and I believe you have a copy, I guess, of our log books with all the data that we were getting mainly from the utility. But that information wasn't being fed by the utility to NRC who then would turn it over to the DOE people for collation at the end of the day, I don't believe.

Q But you were getting it directly?

A We were getting it directly from the plant on an open line on a routine basis. They would call in and give readings of all their data.

Q Generally, what type of information were you receiving the first three days from Met-Ed and the NRC?

A We were receiving data from radiation surveys, on site and off site, and airborne radio activity levels for iodine in particular off site and -- off site only.

Q I gather then you were collecting most of the information from DOE and Met-Ed and NRC, but to whom -- What analysis function did you perform and to whom did you send data and the results of the analysis?

A Well, the data was being scanned for anything abnormal. What we were finding in the environment -- what everybody was finding in the environment was Xenon-133 and

and some small quantities of radio iodine in the air samplar. So that -- and there were samples of milk, soil, vegetation, everything you could think of, animals that were being analyzed by a variety of people. And most of the people were coming up negative. The only things that we were seeing was radiation levels measured with a Geiger counter -- open window Geiger counter and some small increases in milk samples in iodine. Nothing else was being found.

So, I don't know how -- it is awfully difficult to say -- only with the small amount of -- a large quantity, but very -- but it was one isotope that was causing our problem.

Unless we saw something different in the data that the -- the iodine data or the air sample data or the milk data, or just high radiation levels, we weren't -- there was no real cause for concern because off site levels were in the range of one to 10 mr/hr, and we were told about hourly that that would go down to zero within the hour from both the utility and the NRC people on site, that the problems had been solved and the releases would stop until Friday

Q So, there wasn't any widespread dissemination of this information unless you saw something untoward or different?

A We didn't try to put the information in one location and hand it out to everybody. We tried to summarize it at press conferences and to our people and to people that called

in and asked for the data. But not collating and handing it out to reporters. There wasn't anything wrong with it. We just didn't have time.

Q How many professionals do you have on your staff roughly?

A Oh, I think with the laboratory people there are 19 now, and we had two vacancies of professional health phyicists.

Q And about how many of these were used in response to TMI?

A 18.

Q 18?

A Yes. There were people from our Pittsburgh office and our Reading office that were called in to assist.

Q Are all of these what you might say qualified in their ability to evaluate radiological hazards and nuclear power --

A No, not all of them. We have got certified health physicists. The three main people who are involved in evaluating the incident were Margaret Reilly, Bill Dornsife, our nuclear engineer, and myself. Maggie and I are both certified health physicists. We have an additional certified health physicist in our office in Harrisburg and one in Pittsburgh. However the one in Pittsburgh did not come into Harrisburg to work.

The rest of the people have been mainly involved in the x-ray inspection program, and prior to that time it was very difficult to get them interested in reactors because they believed what everybody was saying about there is no problem with nuclear power. And just to try to get them to come in and attend a reactor emergency course was tough because they just -- they were more interested in the x-ray problem than the "real problem" quote-- quote, unquote. They thought it was a real problem any way.

Q Generally, what kind of equipment do you have ability to measure different kinds of isotopes in the lab as well as in the field?

A Well, the laboratory equipment is pretty solid with multi channel analyzers, low background counting, tritium counting equipment.

The field equipment was lacking, and we did not have the capability to do iodine monitoring or any air monitoring with portable equipment. We did not have any portable air sampling equipment. We were in the process of getting it, but we didn't have it.

So, the first day we had to rely upon -- at 10:45 when they started to detect levels outside on the 28th, we had to rely upon the data given to us by the utility health physics people. And when there was some question about that data because of high background levels from Xenon, then the

samples were pulled into our laboratory and analyzed and found not to be significant in iodine.

Q Was your equipment calibrated for Xenon?

A No, it was not. Nobody's equipment was calibrated for Xenon. It was checked afterwards down at the National Bureau of Standards, and everybody came about in the same ballpark. As a matter of fact, I believe that the estimated exposures -- the DOE estimated exposures probably can be reduced by a factor of three based upon some new information from NBS indicating that the GM were only a factor of three high rather than a factor of 10 high. So, probably the exposures can be reduced -- their estimates of exposures can be reduced.

We were very enthusiastic about the quality of people that DOE brought in from the various laboratories. Many of them we had worked with before.

I personally had worked with the Brookhaven people and we had known them very well. We just -- in this kind of an incident, when health physicists are out there working, you don't -- you don't ask questions about their competence if you know them. You know them from experience and discussions with them and knowing how to handle themselves, the kinds of equipment they brought in. You just assume that the information you are getting is close to being correct. Good for health physics purposes. Good within a factor of plus or

two within these levels. That is all we were worrying about.

Q I think you said on about Saturday, DOE sort of took over --

A I can't remember. The first three or four days are all one big day, and I had about two hours' sleep for four days. Except I do remember Friday morning. Friday caused the large influx of federal agencies and I believe on Saturday was when DOE came in force and set up at the airport. And at that time we asked them to handle the data. It could have been Sunday. It was early -- it was six months ago, and trying to remember one day -- one hour was a problem then. One minute. Minute to minute things changed.

Q I think you documented this question in a memo of April 6th, which we have a copy of.

A Yes.

Q Was there a formal request earlier than this?

A Yes. We had in just general discussions requested that this be done. And then because of an apparent conflict between NRC and -- who felt they had responsibility to collate the data -- and DOE, we felt that we might as well put it on paper requesting that agency to do it.

Q That was April 6?

A Yes.

Q There was no document before that?

A No.

Q Was there any problem either physically -- because of the location of people -- or technically in communicating with DOE representatives? And I might sort it out at other DOE regions, and maybe DOE headquarters.

A I am not sure exactly what vou mean by the question.

Q Well, there was -- it seemed like there might have been a problem with communications when DOE moved in and then moved out to the airport to set up their headquarters there.

I was wondering if there was a physical problem, people getting together, or some other kind of technical communication problem or something that --

A When they came in, they brought radio equipment. We also provided them with radio equipment from our forestry network. So we were able to communicate with them by radio.

Q How about communications between yourself and DOE, not field to DOE but between yourselves?

A No, we did that by radio and telephone lines.

Q There was no problem with communications from your office to the airport?

A No. As a matter of fact, on Saturday again -- Saturday or Sunday, telephone lines were installed and a DOE person came in and set at a desk with a tele-direct line to the DOE headquarters. An NRC person came in and set with a direct line to the NRC headquarters and I believe to the trailer on site.

FDA came in and had a direct line to FDA headquarters in Rockville. I think we had three direct lines on top of the open line to the plant, and they were manned 24 hours a day.

Q What are your established criteria for recommending for the various protective actions such as take cover, evacuation --

A It is in our emergency plans, the EPA --

Q Okay. So that your guidelines would be established in the plan?

A Right. By the way, the plan that you people have is our plan, not the PEMA. The plan written for our agency and not for --

Q It was a DER plan?

A Right, this one (indicating) dated September, '77. And you have a copy of that.

Q Is that the one we have a copy of?

A And these are the Protective Action Guides, one to five, twenty-five to seventy-five, five to seventy-five, one hundred twenty-five.

Q I would have to refresh my memory. I don't remember if it talked about the use of potassium iodide or not.

A It did discuss that. But the problem was there was no potassium iodide available to us prior to the accident. So, it was not included in a procedure because it wasn't

available, although we had tried to get it available.

Q Any criteria or sheltering or putting cows on -- shelter cows or putting them on stored feed?

A I believe that is in there. Margaret Reilly, she wrote this and -- the methodology is in here, but I am not sure -- yes, here we go.

The dose commitment for the entire episode for a suitable sample in the thyroid and the affected milk shall not exceed 1 Rem -- in the affected milk shed shall not exceed 1 Rem. Then by calculation, one can determine that the maximum milk concentration is 8.3 nanoCuries/liter. That corresponds to a pasture deposition of 67 nanoCuries/sq. meter.

And if that is anticipated, then the milk protective action options are: removing from pasture, diversion of the processed food products and confiscation and disposal and deliberate dilution to acceptable levels. That is in the document you received.

MR. CHIN: I would like to note for the record that the witness is referring to the Department of Environmental Resources, Bureau of Radiological Health Plan for Nuclear Power Generating Station Incident, September, 1977.

THE WITNESS: And there is an addendum to that for the Three Mile Island Plant specifically. And there is no data on that. That was prior to the start of the Three Mile Island that you also have.

MR. CHIN: The witness is referring to "Three Mile Island Nuclear Station Annex to the Pennsylvania Plan for the Implementation of Protective Action Guides," undated.

THE WITNESS: And it also says "draft" on it.

Miss Reilly believed that the plan was going to be changing so often that every version had a draft on it.

BY MR. ERNST:

Q The Burgandy request and possible use of potassium iodide, as I recall there was a little bit of confusion between your office and the Department of Health. We were curious though currently who is responsible for supply, storage authorization, use and distribution and use.

A Currently?

Q Currently.

A The Department of Health.

Q For all of this? Anything to do with potassium iodide is the Department of Health?

A Yes.

Q But I assume you would make the recommendations regarding the action?

A Right. The problems with the potassium -- well, I think it is in one of the testimonies that I gave. The problem -- we just didn't have a resource available to us to handle the KI problem.

And since it was coming in from FDA and they had

experts in the Department of Health on drugs and knew how to distribute medicine, in effect, we felt that the Department of Health would be the responsible agency -- would be a responsible agency and do the job and get it out to the people. We were disappointed that they were not, but it was not put out in locations where the people were, but it was beyond our control at that point.

Q In one of your testimonies, I recall you indicated problems in communicating with the press during the apparent fall-out from bomb tests. I am just sort of curious what these problems might be and whether they were similar with TMI.

A No, the problems were that we weren't able to do our work because of having to talk to the press on a rather routine basis and appear on television shows and so forth when what we should have been doing was collecting information and making decisions and not talking to the press. Someone should have been talking to the press. A press officer should have been talking to the press.

Our press officer during that -- at that time was located in another building and was not very knowledgeable about radiation. It is interesting in this case -- the new press officer for the department sat in our offices during the '76 episode just to watch and see how we were handling the matter. And he realized what the problems were with the

press. And as soon as we got hold of him, then all calls from the press were referred to his office or handled at his office upstairs.

But he was in the building and he was relatively -- but everything -- all the top level people in the administration, including most of the public information officers, were new to their jobs in relation to state government.

Q You have indicated problems with telephones. Well, let me pursue press business for one more instance.

Some of the same problems, I gather, occurred during TMI?

A Yes. Calls came in from the press immediately.

Q And what is the solution? You mentioned the press officer sitting in your offices. Is that an effective way to go, or what is an effective way to communicate?

A I have no idea. It is just too big a job for -- there has to be a technical person there to answer the technical questions and to explain to the press officer -- give technical data.

We just didn't have the resource people there who understood the problem to be able to put that into a perspective that a newspaper man or even a TV reporter would be able to then take to the public. It was a difficult situation to explain, not only what the basics of radiation were, which we had to do, the basics of nuclear reactors, which is what we

had to do, and also explain what the doses meant and how serious they were and whether or not we believed that they were serious enough to cause any concern.

We tried to get -- to feed our press officer with all of this information. And every time we had a chance or a break in any kind of activity, we would fill him in on what had just happened and then try to keep him up to date on what our opinions were on exposures and why we didn't think it was necessary to evacuate and so forth.

Q What type of person would it take to provide this interphase, do you think?

A I think it has to someone who has dealt with the press and is -- probably I would like to see a technical -- a health physicist of some kind who has been around for a while and knows what to say and what not to say.

You are not trying to hide things, but there are ways of saying things that can be -- that you can give the same information out in two ways: one to scare the hell out of everybody or one to be just straight forward and relay facts and questions. It depends on what you want done at the time. If you need to scare people to get them out, then the person should be able to do it. But if you want them not to go and you don't feel there is a need to move the people, then it has to be done in a different way.

I think Denton is a classic example of the person

who could calm the people down. I don't think that using the typical -- a typical press officer is the way to do it. The person has got to be technically knowledgeable. Met-Ed tried that and it didn't work at all. Nothing worked with Met-Ed. It didn't make any difference. It had just lost all their credibility the first couple of days.

Q Do you have any opinion as to why they lost their credibility?

A I think it was attitude. The attitude of the people who were making the statements to the press and to the public. It was unfortunate. The people were qualified to make the statements, but the way they made them, downplaying the interests or the concerns of the public and the government, and downplaying the -- downplaying the episode itself as just another little incident when nobody was really sure at that point whether it was just another little incident or not.

I think they were trying to tell the truth. It was just the way they told it. I don't think they tried to lie to anybody. If you look -- hearing what they said, they were telling what they thought was going on. It is just that they were not aware of what really was going on either.

And I don't think NRC -- the NRC people at the site were aware of what was going on. That is all in retrospect. I don't think they were aware of what was going on until

headquarters got deeply involved.

Q What aspect made Denton credible in your judgment? You mentioned --

A I don't know. He is one of the -- his slow easy-going style. He was somebody fresh. The President's hand-picked man. There were all kinds of things. And he told -- went out and told everything he knew, answered all the questions and was --. He did not downplay anything. I think that was one of the things. He didn't try to say that the accident was no big problem.

He said it was a big problem and what we were trying to do about it. But I think -- more his southern, soothing drawl than anything else that calmed people down. I don't know how he did it. In the north, that is not a qualification -- normally the people up here don't believe the southern drawl. So, I don't know.

It was different. Probably Vic Stello could have done the same job. People accepted him because they believed he knew what he was talking about and he was being honest with them.

Q You had also indicated problems with telephones and had to even use, I gather, walkie talkies in the offices and also some loss of communications with PEMA from time to time.

I was wondering, at least from your perspective, what has been done to remedy this situation?

A Telephones are being installed from the utility to our office, a hot line. These are direct lines, ring, pick-up-type phones from each utility -- from each control room at each reactor to our office. And a direct line is being set up between our office and PEMA offices.

In addition, it has been agreed that next time -- next time. I informed my boss if there is a next time, he has got my resignation right away. Once is enough. -- that we will station someone over in PEMA headquarters to be able to explain to them what is going on.

Since the evacuation was never carried out except for the pregnant women and children, we didn't keep PEMA informed the way we would normally do in an accident. It was just an oversight on our part by not contacting them and telling them what the levels were and what we were finding and so forth. And also the results of meetings with Denton and the NRC people and meetings in the governor's office.

During the first couple of days, they were in attendance in the governor's office and we didn't feel we needed to fill them in. But after that, they weren't in attendance. And we felt that the Lieutenant Governor, who is in effect PEMA, was informing the PEMA people of what had happened in the meetings with Denton and the Governor. Apparently that wasn't the case.

So, they didn't have any information and they

couldn't get information out to the counties who were very upset because they were getting all the calls.

One of the problems that I saw as a result of the proposed press conferences, Denton would come in to us and talk with the Governor before going to a press conference where he would give out the same information. And then have available a summary of the information that he was going to give out at the press conference. That summary was not made available to us that could be given to civil defense or PEMA that could put it on the wires to the locals so that that could be made available to them. Instead of listening to the press conferences over the air, they could have been made available of it while it was happening.

There was no request for it, although once I was asked for copies of it, he said, "Come on down to the press conference."

But that did disturb me a little bit. But at that point I wasn't concerned about public information as much as they were. I was suspecting that the Governor's office was probably getting copies. But they did not want information to go out prior to Denton's release of the information.

Q This was passed out in the Governor's meetings?

A No, it wasn't passed out.

Q It wasn't even passed out to people there?

A No, they came to the meeting -- Denton usually came

to the meeting with Joe Bashard*, and Bashard* would have with him a copy of the statement that Denton was going to make at the press conference. And he would take it with him as far as I knew. I never saw a copy of it.

Q So this is the NRC status report or press release --

A That was going to be handed out at the press meeting. And all the technical information -- it was agreed to by Saturday that all the technical information would come from Denton at the site and/or in a joint conference with the Governor. But the local people, who were really up tight of what was really going on, never found out except by listening to the radio.

Q You were present at most or maybe all of the Governor's meetings from Friday on?

A Most, not all.

Q But most?

A Yes.

Q And PEMA was not represented by the Lieutenant Governor?

A There was some meetings that PEMA -- where PEMA was at that I wasn't there where they were discussing evacuation plans and how things were to be carried out. The methods of evacuation were not our responsibility and so we weren't involved. I didn't even know that evacuation plans were being readied for 20 miles until I got home one day and there was

*spelled phonetically

a little note tacked to the door saying, "This is where you go if you are evacuated." And that was like Sunday.

I had no -- it just didn't occur to me that that much work on evacuation was taking place up to 20 miles.

Q Who put this on your door, do you know?

A The Civil Defense.

Q Civil Defense?

A The Cumberland County Civil Defense.

Q It wasn't a business-related note?

A No, it was just given to everybody. "This is the route you will take and where you should wind up." We were supposed to go to Chambersburg.

Q In your view, who was really responsible for communications, or is there such a responsibility?

A There are two kinds of communications. There is communications to get information back and forth between the parties who need to know. Then there is communication with the public.

I have a hard time with the public one. I don't know how to resolve that one. But communication among the agencies and among each other, I think -- and among the state, the people who have to make decisions at the state level were solved pretty well by Friday when we started using the Civil Defense walkie talkies because telephone lines were tied up.

And what we would do is call someone on the walkie

talkie and ask them to call us on a certain line that was open. And that way we could talk over the telephone and give some information -- say we didn't know anything more, rather than put the information over the air and have everybody who wanted to listen to that frequency who was capable. And that happened during the whole episode, people monitoring NRC frequencies and then giving us a call saying, "What is going on down there? They are out checking for iodine." It caused problems.

We are getting an additional radio system for our own vehicles. We have purchased an environmental monitoring vehicle, a big van, which will have a massive system which could be used anywhere in the state and can be used as a massive communication on any kind of disaster and will have equipment for radiation detection work in the field similar to the van that NRC headquarters had and what EPA has down in Montgomery, and New Jersey has.

Q There was also -- and I don't know the kind of communication problem this was -- but there apparently was a lack of communication in the state police.

A Oh, boy, yes, was there. I didn't know about it until I went to a meeting with all the agencies that were involved and the state police gave a sequence of events and what they understood to be happening. And I couldn't believe what they thought was going on in their official document

compared to what we knew was going on.

Q Is that the meeting you had in Harrisburg?

A It was wild. We have attempted to work with the state police in getting them up to speed on accidents. There was -- we had met with them in the past, prior to about three or four years ago. All activities relating to emergency planning for reactor accidents were handed out of our office. They were handled out of our office because the State Council of Civil Defense, which is what they were called until January, did not want any part of reactor emergencies.

So, all meetings with local officials, all meetings with state police barracks as to what they should be doing or as to how they should be acting, all meetings with utilities were -- and all planning was done by, in effect, Margaret Reilly, one person in our office. And it was one -- it was a hell of a job because the State Council of Civil Defense just didn't want any part of it.

After the new director came on board and after they had received quite a bit of money from one of the federal agencies to rewrite their disaster plan -- And as part of that requirement, they had to have a fixed facility radiation plan, then they got involved and we started having informal agreements with them as to what we would do for them and what they would do for us.

So, finally things in the last three years -- three

to four years, they worked out very well compared to what it was before. We were completely on our own and nobody -- nobody believed there was a need for an emergency plan for a reactor in Pennsylvania. It was very difficult to convince people to get involved, including the local township.

We had a meeting of the local people in Dauphin County, the local civil defense directors in Dauphin County in the five-mile zone surrounding the plant. And we told them what the problems were and what the -- what plans they should have, and they just walked out and never did a thing. Very difficult to convince local communities to do anything.

Q How have you resolved the communication problem with the state police?

A Every Monday a meeting is held in PEMA to work on new plans that are being -- the ten-mile plans and to upgrade the present plans. That was up through last Monday. I am not sure if it is still going on. But state police representatives attend those meetings, and they are now getting informed on how to write a plan and what their responsibilies are. We had to work not with the -- we had to work with the individual barracks, and we never got beyond the barracks level on emergency planning. We didn't.

PEMA or civil defense required each agency to submit a plan of action for a -- for their role in emergencies including radiation emergencies. I don't know what happened

with the state police. I think they were forgotton about. I don't recall.

Q You indicated this problem in communications with PEMA, and I gather you have said now this would be resolved in the future by stationing a qualified individual --

A Yes. We have committed to it. I just hope we have enough people.

Q Is this additional staffing or existing staffing?

A Well, we have a request in. We did get an additional $300,000 in the budget this year, and I know $200,000 of special funds for equipment. We are planning on hiring six people. One will be a nuclear engineer. The rest are health physicists. The rest will go for increased lab equipment. And most of the money will be spent on equipment -- on supplies for the first year. Next year we hope to bring in nine new people, half of which will be in the laboratory, and the rest will be in our offices. That would include three additional nuclear engineers.

We would like to have a nuclear engineer per site so that -- not on site like NRC does, but someone who is very familiar with the site, and if an incident occurs there, knows as much as Bill Dornsife knew about this particular site. He just can't handle all of the problems at each of the sites now.

We are hoping that next year's budget will include

that. But we do have approval for one additional nuclear engineer now and one additional health physicist. And since our people have been through this, we could take some people that we didn't think we could use before and use them now because they have now been brought up to date on what our problems are. I think it can be worked out.

Q When were you first aware that an NRC document existed which was given to the Governor by Hendrie on Sunday that analyzed possible future accident scenarios? And I believe it is that document there.

A I believe we got a copy of it on Sunday.

MR. CHIN: The witness is referring to a document titled "NRC Procedures for Decision to Recommend Evaluation."

THE WITNESS: I didn't pay any attention to it. I didn't realize it was there, I guess, and I think possibly Bill Dornsife picked the document up or somebody else in our shop. But I had not seen it until about a week -- a couple of eks later.

Q I see.

MR. CHIN: And it's a 7-page document. And it is now marked Exhibit 3.

(Exhibit No. 3 marked.)

THE WITNESS: The unfortunate thing is, neither did civil defense or PEMA receive it, and they are still

working on evacuations up to 20 miles.

BY MR. ERNST:

Q Have you read the document now, at the present time?

A I have read it, but I haven't tried to evaluate whether or not they are correct.

Q Did you find the document understandable?

A Oh, yes. Yes, I think it was well done for the various events that could occur. We were given the information verbally in the Governor's office about the time frame needed to evacuate people, and it kept getting longer and longer and longer except for certain types of incidents.

But I don't know when I first saw that document. It was in our office, but there were so many pieces of paper around that I don't know when I saw it.

Q Are you aware of a sort of pseudo command center established in the Governor's office during this time period?

A No.

Q There were, I gather, a number of people who were essentially the Governor's closest advisors or performing that kind of function.

A I am not sure exactly what they were doing.

Q So, whatever this group was, you didn't know -- have much dealing with them?

A No.

Q On the 28th of March, I guess, at about 2:30 in the afternoon, I think you were present with Herbein and Miller and Miller briefed Lieutenant Governor Scranton. Were there other discussions during this time of steam dumping and difficulty with depressurization of the reactor and some various sources of releases -- technical information like that trying to describe the mechanism by which radioactivity was going into the atmosphere?

A No, I don't believe so. I don't recall very much of that conversation. I think they came and gave us what -- maybe an update on the status of the reactor that Bill had already given previously and not much more. I don't think Bill Dornsife was at that meeting either, and that was unfortunate because he could have asked some very pertinent questions about the status of the reactor which was beyond me at that point.

I think it was their attitude that just turned everybody off in the Governor's office -- in the Lieutenant Governor's office, I believe. I am sure -- Governor's office. But it was again downplaying the incident. I was not happy with the information that we got and -- and I wasn't sure we got it all. Although I had dealt with two of the people very closely before and had no problems with them, and I just couldn't understand what was going on at this time.

I wasn't sure I believed them, and I know I wasn't

happy when I left the meeting, and everybody was mad. And that is when the call went in asking for NRC to come up that evening to fill the Governor and Lieutenant -- to fill us in on what they thought was going on with the reactor.

Q What was the source of Mr. Dornsife's information? Did he go back to the plant quite often?

A No, he worked at the plant -- I don't remember what time he worked for them, but he worked for a consulting engineering firm at the plant for about six months prior to its operation. And so he became very familiar with how that particular plant was designed.

So, he knew more about -- probably the only -- one of the few off site people -- When Denton got there, he was Denton's right-hand man filling him in on what was going on, what the systems were, where things were, because he had worked there during the construction phase.

He has been with us for about three years, so it was during the early construction phase and trying to -- His comments to us were that he was trying to fix the mistakes that were made in the design of the plant, to straighten them out -- back before they got started.

Q During the morning of the 28th of March, Met-Edison vented steam in view of the secondary system. Do you remember, perhaps not exactly, but when at least by whom you were informed of dumps of that nature by Met-Ed?

A I don't think we were informed of the steam dumps.

Q Did you understand what the procedure was, the dumping, why it was being done and things of that nature?

A Not why. I understood what it was. And at that point, we were concerned that iodine may be getting out through that route because of the possibility of the -- they had previously informed us that there may be a breakdown of the steam generator and/or primary secondary leakage. However, they told us that that side was isolated and the other side was fine, so dumping steam really didn't bother us too much unless it was contaminated.

Q Was this the position you were taking with the higher-- like the Governor's staff?

A I don't recall. I just don't recall what position we did take if any. I am not sure it made a big impression on me anyway. It may have on somebody else. We were surprised to see iodine in milk so early. And we knew the cows were on pasture. That caused a lot of early concern because we weren't finding it in the air.

We expected -- in a reactor accident, the worst thing is iodine and that is what you are out searching for with everything you have got. And it wasn't there. NRC confirmed it wasn't there. DOE confirmed it wasn't there in any great concentration. But then it started showing up in milk.

It wasn't underground. So, it had to be inhaled, and that is a lot of radioactivity to inhale -- for the cow inside a barn to get that kind of milk. It was just detectable levels, but they were there, which surprised us.

Q Were you made aware of any of the steam dumps, such as the one around 3:00 o'clock Wednesday which apparently caused a problem at the state level anyway?

A I am not sure what you mean by steam dumps. In other words, venting from gas tanks --

Q I guess I used the wrong term. Let me go back to that one. Apparently, around 3:00 o'clock, the Lieutenant Governor requested that steam venting be stopped.

A So that is where that came from. I don't -- we were trying to figure out who made that request. We didn't know anything about that request.

Q So, you are not aware that this was a request by the state government?

A As a matter of fact, I called the Lieutenant Governor's office two weeks ago to ask if -- after reading the NRC report and hearing and getting questions from you guys about who was making all those calls and getting more and more concerned. We didn't know who was making those calls.

We didn't even know they were being made until after reading the NRC report on it or, what, a couple of months ago now. And we tried to find out who it was, and we knew it

wasn't anyone in our shop. And I called the Lieutenant Governor's office and asked if they did it, and they came back and said, "Nobody in our shop did." I didn't talk to the Lieutenant Governor directly or his chief assistant. I can't remember his name.

Q Did you or any of your staff accompany the Lieutenant Governor Scranton on his visit to TMI?

A No, I didn't know he was going until after he came back.

Q Do you know who he took with him?

A No.

Q During the day and night of the 29th, plant operators vented the makeup tanks periodically?

A1 Right.

Q When and how did you first learn or were informed of this venting procedure?

A I am not sure when we were informed of deliberate venting. Indications that we got from the NRC people on the phone and in person was that the majority of the radioactivity was coming from water that got out of the tanks and was on the floor in the AUX building, and as soon as that water could be cleaned up, there would be no problems with releases to the environment, that the Xenon was coming out from that water and the inside of the building was so contaminated with Xenon and other isotopes that the -- the gas isotopes that it was

taking a while for the Xenon to get out of that big building through the filtering and out into the environment, and slowly it would go down.

Until Friday, I don't think we got involved -- We knew they were indeed -- I knew that they were at least deliberately opening valves or that valves were being opened by them because of too much pressure.

Q When on Friday did you become aware of it?

A When the 1500 -- or the 1200 mr/hr was reported to us and when we talked to the plant and found that they were -- that there was quote "an uncontrolled release," planned but uncontrolled.

And I think I went to a press conference and said it was uncontrolled, and Met-Ed went to the press conference and said it was planned but was not uncontrolled.

We have tried to search individual's minds at the time and nobody seems to recall. Bill was down at the plant quite a bit on Thursday and Friday. So, I don't know if he had informed us of that -- that anything he had learned in this area. I don't -- I didn't -- until Friday, I don't think we were concerned because we didn't know about routine venting from the gas system.

Q How about the hydrogen bubble problem? When were you first informed of that?

A That was a telephone call in the Governor's office

by Joe Hendrie, and that was Friday, I believe Saturday -- Friday night or Saturday -- Saturday, I think discussions with Denton indicated that there was a possiblity of an explosion.

And by Saturday night or early Sunday morning, I think we had found out what Stello at the site -- that the probability was very slim and it wasn't really an explosion. But it didn't make any difference. The facts had been all out in the press and everybody was upset about them. We sure didn't know then the situation, and nothing about the possible error or the calculations that were being made. We couldn't figure out why the President was coming. But that caused the evacuation plan.

Q Did you or your staff have any conversations with Met-Ed or the NRC other than Denton and Hendrie?

A Well, yes. I don't know who Bill was talking to at the site because he was down there for 12 hours. He would call us and fill us in on what was going on. Either that or come back for the briefing with the Governor.

And he stayed down at the site for a month on a 12-hour basis. But --

Q Basically, all the recommendations regarding this problem were coming from the NRC to the Governor and not through your office.

A Once Denton came on board, the Governor relied on him completely for information unless we felt that there was

something that we felt was more serious than he was giving -- but that was serious enough. We did not attempt at any point to disagree with him -- to say that his concerns were not real.

Q At one point I believe Governor Thornburg stated that he had sent a radiation and nuclear radiation expert to the site.

A That was Bill Dornsife. He also told me to go and we would split a 24-hour shift. Bill could go for 12 and I would go for 12.

And so Bill was down for the first 12, I think on Thursday. And I went down -- Thursday -- Friday -- and I went down to find out what he was doing and what kind of information he was getting. That was prior to Denton arriving.

And we just decided that it wasn't -- that the information he was getting down there was not enough. We could get as much back in the office, and it wouldn't -- we couldn't spare the two people -- two of the chief people who knew what was going on to be down there rather than back in the office talking to the Governor and so forth.

So, we decided he would stay and I would come back. But the Governor thought we were both down there. And I showed up and he said, "How come you are not down there?" And I told him, and he said okay.

Q Shifting a little bit. Apparently, there were right around 200 people in the federal response involved in the radiological monitoring. Do you have any comments regarding their level of response for the TMI incident?

A I think it was adequate for the TMI accident. Because of the 24- -- the need for a 24-hour coverage, that takes its toll, believe me. It takes its toll.

People were very, very tired. I think there was a need for that many people to get all the data together. Oh, it might have been over and done after three weeks, but I don't -- we were still kind of up in the air as to what was going on at the plant. The plant wasn't going into cold shut-down. They had to do some crazy maneuvers. And so it was -- I think it was necessary. I know DOE spent a heck of a lot of money, but they sure provided the services. We would have been in trouble without them, really in trouble.

Q Do you know if there was -- either yourself or other members of the state -- whether they officially requested support from agencies other than DOE?

A No. We had offers from other agencies. And, as a matter of fact, EPA showed up and we -- I assumed it was the Montgomery people from EPA that came in. And we found later it wasn't. As a matter of fact, Charlie Amato, who is with EPA now and is a nuclear engineer, had to give them a course in how a reactor works to explain what was going on when I

didn't know that the Montgomery people were available and were ready and willing to come. But we didn't request EPA's assistance, at least nobody in our shop did.

When they arrived, we took care of them. Somebody in our office got a call from the Montgomery people saying, "We are ready in Maryland," and we looked around and we had so many federal people there we did not need any more. We were overrun with federal people at that point.

If I had known, it sure would have been a great assistance to our laboratory to run that van right up next to the lab. And because we were over -- We just didn't have the lab capabilities to handle all the samples that were coming in.

Q Apparently, Met-Ed made a commitment in the NRC licensing process to provide training and the opportunity for your organization to participate in such monitoring and response training in the emergency response training -- in the radiological monitoring and response area. Are you --

A I don't know. We were involved in each major drill that they had with people either down there evaluating or our people back in the office, mainly telephone contacts, as to what would be done, how it would be done and trying to get the proper information over the phone from the utility and -- concerning the drills that they were having.

Q I expect that is the training that is being talked

about. But that was the extent? It was just notification?

A That's right.

Q What kind of information over the phone?

A Not -- usually not the kind that we wanted. And if you notice in the TMI emergency plan, there is a sequence that was developed of questions that we would ask of the facility and we would start down those questions, and they would say, "We don't have any answers for you. We have a little sheet of papers that have some information, and that is all I can give you is what is on this piece of paper." And there was no coordination.

Q So, you were asking questions about status and things of that nature?

A And at that point we didn't know what the plant status was.

Q What would they typically transmit to you?

A Oh, heck, I don't remember. Not very much. The plant shutdown. Off site levels are predicted to be so and so, so and so. Our monitors are out now. That kind of information.

But, "What is going on at the plant?" "Well, we had this kind of an accident." "But what is the status of the -- what are the safety guards? What is the pressure in containment?" You know, all the kinds of things you really need to know as to how bad that situation is. And that wasn't part of

the scenario, at least given to us over the phone.

Q What kind of --

A And the NRC people were sitting watching the procedure all along, and local people were invited in to see how the situation was handled.

Q Was there critiques afterwards of these exercises?

A I think so, but I was never involved in them.

Q You didn't participate in any critiques?

A Margaret Reilly did or Bill Dornsife did, but I didn't. We never got involved in the full scale exercise where we sent our people out to -- heck, it was easy. If we had wanted to make a big deal out of it, it was to participate and show that we couldn't communicate. And secondly, they said, "Heck, well, you knew ahead of time that you wouldn't be able to communicate. Why wouldn't you go over and get the cars and the radios and go out like that?"

So, it was between a rock and a hard place in responding -- If we weren't told ahead of time about the drill, I think -- And they said some time in the next couple of weeks there is going to be a drill and we want your full participation as if there is a real accident, then we might have found out -- then we might have been able to be credible when it was reported that we didn't have the things that we said we didn't have.

I testified before the legislature trying to get

funds for our program ever since I have been with the state to get a good emergency response capability including radios and communications and so forth.

Q This is communications, van, people --

A Equipment.

Q Portable iodine equipment?

A Right. And they look at you and say, "For reactor accidents? No way."

Razmussen* came out and said that the probability was greater of getting killed by a meteorite. You haven't been killed by a meteorite.

Q Did you complain at all other than to Met-Ed, the operator getting the information, that this isn't the kind of information you need?

A I don't think -- I think so, but I didn't personally.

Q Before March 28th, other than the testing problem, were you aware of any problems between you and the utility prior to March 28th?

A No, we had reasonable rapport.

Q You had reasonable rapport?

A Yes, and we still have reasonable rapport at the technical level. The problem is above that and decisions being made and statements being made to the press where there is -- where the public gets all upset and we have to answer the questions and we don't have the answers because we weren't

* phonetically spelled

informed in the first place.

I got a call last night at 7:00 o'clock saying later that evening they were going to discharge 7400 gallons of water from Unit I and what the concentrations were, what the percent of mpc was, and they wanted to inform us ahead of time that they were dumping. Well, they had been doing this routinely, and everybody gets up tight all the time.

I think there was a guy at Peachbottom the day before. This guy was having a heart attack at Peachbottom and they were informing us. We are getting all kinds of crazy calls.

Q But to your knowledge, the only identified weakness between your organization and Met-Ed was one of unrealistic tests?

A Yes, but that was the same in all the facilities. That wasn't any different at Peachbottom. Peachbottom was probably less.

Q But there wasn't any perceived weakness in planning or communications, just in information transmittal in a mock problem?

A Yes, it was -- what was really happening, they had this information; they could answer our questions. We didn't write the scenario. We didn't review the scenario, so therefore we couldn't get our inputs into the scenario to start with.

And the poor guy on the telephone, I wasn't going to

blast him because he couldn't give me the answer I was asking.

Q Any comments on the overall effectiveness between Met-Ed and your organization for the first few days or any temporal changes?

A Well, one of the things that we had -- did not do during the first three days was try to determine very much about the reactor status after NRC arrived on site. We felt that NRC people had the responsibility for the on site problems and we would take care of off site problems.

All of the information from that point on that we were getting from the utility were from their health physicists crew and their monitoring data, not with the control room operations and what was going on there. Because, you know, there were nuclear engineers in there and reactor inspectors there. We thought they were doing their job. We didn't go in to check to see if they were doing their job. We just thought they were. And I don't know if they were or not.

Q Other than your comments on communications with the public, do you have any personal perception concerning Met-Ed's response to the emergency?

A Well, I think all utilities -- I think it was lucky it was Met-Ed rather than Philadelphia Electric because it would have been five or six hours after release occurred before we would have been notified. The notification procedures as set up were a constant problem from reactor site to reactor

site. And we tried to get all of the utilities to come into compliance with one set of procedures for notification.

Philadelphia Electric didn't want any part of it. They had to go and have a conference call among their top brass before notifying anybody. And all the utilities wanted to do it in a different way. Call outside, have their director of operations make the call to us and so forth.

The actual call that came in was from the plant and from the plant shift supervisor at the time according to the emergency plan, I believe, that they had to make that call to us because of the potential for -- that when they declared a site emergency, they called.

And prior to that time, they didn't have to call immediately according to their procedures. They knew they had problems and they should have called, but they also knew that they had problems before and -- I don't think they realized it was as serious as it was.

I don't have any problems with their calling at 7:00 o'clock in the morning. If we had known at 3:00 o'clock or 4:00 o'clock when it started, it would have been just three more hours of waiting for more data.

Q In the overall sense, did you believe that the state emergency plan was adequate?

A Yes, the plan was adequate. I mean the problem is, can you carry out the plan? You can write -- The overall

state plan was adequate.

Now, our plan was adequate. The civil defense plan was not adequate. The local communities' plans were not adquate. Our plan was adequate for the purpose it was intended and with the limitations we knew we had.

If their -- I mean I didn't realize how bad the situation was with the evacuation.

We had, at the Three Mile Island hearings, the operating from the hearings, there was a couple of weeks of testimony on evacuation plans by State Counsel of Civil Defense, the assistant director and by Kevin Molloy, who was the Dauphin County director. And the information he gave to us or he gave to the board was that they could evacuate people with a reasonable period of time from the five-mile zone.

I had no reason to question his capabilities. He was an expert in his field, and I was one in mine. And I didn't -- evacuation wasn't my bag. But he never told us the problems he was having at the local level.

And there is the attitude, the concern that everybody has brought up about panic if an evacuation is going to take place. The Governor was very up tight about a possible panic, and that also came from the White House on Friday, the concern of panic. That people -- if an evacuation was ordered when there wasn't really one needed, that it might cause more problems than help. I don't know. In most disasters, you

don't have panic. But this isn't -- this was -- I don't know what radiation would have done. So, I couldn't comment to the Governor on it.

Q So --

A I was concerned that there wasn't a state of disaster called and that they didn't ask the President for a disaster proclamation or an emergency proclamation. But apparently, that was resolved between the White House and the Governor's house, that that wasn't needed and doing that would scare the people, that it wasn't needed.

Q I gather your testimony on the license hearings and on the adequacy --

A I didn't testify.

Q You didn't testify?

A No, it was on the evacuation portion. The testimony was on the evacuation portion of the plan. It was the intervenors had raised the contention that evacuation plans were not adequate. And so it was evacuation only that was being testified to.

Q Okay. Who were your principal NRC contacts during the thing, and I guess I am talking more about offices. And let's get it even broader than that.

We have the region people on site, the region people in headquarters. You have got Washington and Washington people on site. Did you do business primarily with the site

people?

A Yes, although we were getting calls from headquarters on Wednesday and Thursday, usually from the Office of State Program people and the emergency response people. Somebody told me that I even talked to "Doc" Collins. I don't recall talking to Doc Collins, but he said he talked to me. I might have talked to him. I talked to a lot of people. It wasn't very important, whatever he said, so it didn't stick.

Q Did you have many conversations with site people?

A Yes.

Q Region people at the site?

A Mainly with Chick Gallina who we have known for a long time and trust. And he was usually on the other end of the telephone or available at the other end of the telephone.

Q What was the nature of conversation primarily? Was it radiological status?

A Radiological data. Plant status never came up until Friday.

Q Did you conclude that NRC communications were a two-way path or one-way?

A To us?

Q Yes.

A I don't know. It is not something I thought about very much. It was a one-way path from Washington to here. I think it was two-way communications with the people on site.

I went down, spent some time down there talking to Phil Stohr, another person who was down at the site most of the time who had brought their van down to get the data and found out what kind of data they had. There was free flow of information back and forth.

And we had attempted to have free flow of information back and forth between the people we were used to dealing with at NRC. Maybe -- I don't think I had talked to Joe Hendrie since I was his health physicist at Brookhaven. So, until the day he called and I told him he was full of baloney -- I didn't say that. Under my breath I said he was full of baloney.

Q What were -- historically, do you think the NRC provided you with current and complete reports regarding results of inspections and --

A Yes.

Q -- and things of this nature?

A Yes. We would get daily reports in from NRC with, you know, thick documents and -- that were -- that had to be reviewed. And it just got to be a routine and probably too routine.

Q These are the inspection reports and things of that nature?

A And all the correspondence between changes in the licenses and --

Q Would you explain a little more -- when you say too routine --

A Well, it got to be so you scanned it to see if there was anything really interesting in it instead of reading it word for word. Like, when Peachbottom first started, every word was looked at in detail. But not -- we were also getting copies of the Atomic Energy Clearinghouse and you could see all the correspondence going among the various utilities. And it just seemed like that is all NRC did, was put out correspondence. And they didn't mean too much to us after a while.

Q What would be a more useful way to communicate?

A Well, I think that the documents that are coming in now are being read again in more detail.

Q All of them?

A All of them.

Q Even those that have something to do with New England reactors?

Is there a more useful way to communicate?

A Well, if the same kind -- I think a much more useful way to communicate is one-on-one. That is why we are hoping that we can get nuclear engineers to go down to the site and talk to the NRC on site inspector and to keep up with what is going on at the plant and key people on inspections once in a while and get a feel for attitude of the utilities and the NRC. This was not done. Although it was requested

at the regional office and was being set up.

We just didn't have time to carry it out, or a lot of other responsibilities on one nuclear engineer.

Q Do you have any general suggestions for improvement of NRC response following an accident of this nature?

A We were always under the impression that NRC would respond only to handle the -- to look over the shoulders of the utilities to find out if they were complying with somebody's regulations. We had -- Maggie Reilly had pestered the commission, and in particular Collins and his crew, about their emergency plans. Now, we have to submit our emergency plans to them. Why don't you submit your emergency plans to us? We would like to know what you are doing too. That is Maggie, probably. We really didn't think that they would respond in the manner in which they did.

Now, if it had -- it wasn't a typical accident either. When we thought of what is an accident, we thought you were going to have a pipe break, you were going to release radioactivity. We are going to make decisions bad or good. We are going to move people or not move people and then suffer the consequences later.

And we always felt that the first big accident was going to happen in Pennsylvania. We just knew it was going to. I guess all the other states feel the same way. But when Maggie called that morning, I said, "Well, here it is

the way we predicted. Let's go." It was that kind of an attitude.

We knew we were ready to respond within our capabilities. I don't -- I still don't know what NRC will do in the next reactor accident. They didn't do well on this one. I don't like the idea though of NRC by-passing the radiation people in the state and going directly to the Governor and making recommendations. I think they ought to work with the radiation people of the state and together go to the Governor and together make those recommendations.

What Doc Collins did on Friday morning is obscene, and I just can't imagine him doing that or going to the people that he did saying we recommend you evacuate without ever informing us of the reasons for that evacuation. And I hope that never happens again. That was a dumb decision.

Q What other major deficiencies can you identify with NRC?

A Well, I have a feeling and -- from reading some of the documentation afterwards is that when the regional people got in right away that they didn't do anything, that they really -- they didn't take over, which they didn't want to. But they didn't get involved in the decision making process as to what was really going on at that reactor. They weren't looking over their shoulders and saying, "You have got a hot thermocouple that you aren't watching." They weren't trying to

be helpful. They were being inspectors. They were trained to be inspectors and not trained to run a reactor. Stello was probably the only one that could run that reactor. He knew enough about the total -- the whole system. And NRC is made up of experts in system -- in small systems, and they all get together in one spa and everybody argues, and they all work it out and it works out well for licensing. But not for operations.

And I think that is the biggest problem. You have got to get some people who are not generalists but who know the reactor problems intimately and what -- in the actions taken by the operators to mitigate consequences of accidents, this should be something that NRC people would say, "No, don't do that."

Instead, they let them go and do things without even approving them. Turning valves off. I don't think they were asked either.

I know this is blasphemy, but NRC has been run so long by lawyers that they are so interested in the legal aspects of what you are doing that sometimes they miss the safety aspects. If it is not in tech specs or if it is not in the regulation, they don't do anything. That is a lot of crap. And I think that they ought to be able to respond to an accident, have the authority to direct operations if necessary and to countermand the actions of operators if they

are properly trained to do it. I said if necessary and they feel competent that they -- that what they are proposing is better than what the operators are doing.

I am concerned in general about the quality of the staffs at utilities, at small utilities. And I don't know how to resolve that one. They -- especially the health physicist staff. We have been trying to upgrade health physicists at plants and so has NRC for a long time. And it just hasn't happened. They get a fairly qualified guy, and they put him headquarters. So he is a liason between the commission and the reactor. And he doesn't get into the day-to-day operations. It's a -- maybe combining utilities.

There are some good utilities. Some people in some of the utilities that can really -- that are really sharp and can handle routine emergencies. I don't think Pennsylvania has any of those.

The people at reactors at the utilities still think of a reactor as just a different kind of coal-fired boiler. That is how they came up, through the system, many of them. And then the reactor operators are mainly nuclear navy guys, and I have got a question as to whether the nuclear navy experience on reactors may have had an influence on their decisions, for example, not to go solid in the pressurizer, which is something you can't do on a sub but something you can do at TMI. And they were so ingrained with the Rickover

approach to handling the subreactor they may not have -- that there may have been an overriding concern.

Q Anything else?

A Maybe they will have to be debriefed. Rickover has a hell of a training program for his program, but it is not good enough for the commercial world, or it is not the kind for the commercial world.

MR. ERNST: That is about the end of the questions we had. Do you have any other observations or --

THE WITNESS: I hope you are the last group.

BY MR. CHIN:

Q I have a couple of clarifying questions. You mentioned earlier during the meeting of Herbein, Miller and Kunder* that you --

A Herbein and Miller. I don't remember that anyone besides Herbein and Miller being there, so that is why --

Q I think Mr. Kunder* was manning the phone, staying in touch with the plant for Jack Herbein.

A Right, there was another person there.

Q You also mentioned you were dependant on Mr. Gallina for some of the radiological information. Where were you getting the plant status information?

A We weren't. After NRC arrived, we felt -- unless there was some change in the plant status that they felt they needed to tell us, we didn't ask for it, after they arrived

*spelled phonetically

on Wednesday afternoon in force.

Q I see. Was Mr. Dornsife on site?

A On Thursday? Not on site. He was on site in the trailers.

Q I see. You mentioned earlier during your discussions of the Herbein-Miller conversation with Mr. Scranton that you were not aware of the steam dump.

A Yes, I don't remember steam dumps being brought up at all. It may have been.

Q I would like to jog your memory a bit. Earlier that day, you learned of the releases from the plant about 10:45.

A Yes.

Q And you elected not to try to communicate this to Mr. Dornsife who was participating in the press conference at the Lieutenant Governor's press conference. Do you recall that?

A No, we did communicate with him and inform him of what the releases were. And at the press conference he -- he didn't communicate that with the Lieutenant Governor.

Q What releases were you talking about at that moment?

A At 10:45 we were detecting off site levels. They were detecting off site levels of 1 to 2 mr/hr and iodine and radio iodine samples were coming in. We informed him of the radio iodine anyway because that he mentioned during the

press conference, and that shook up the Lieutenant Governor because he didn't know about it.

Q Were those releases that you were referring to related to the steam release?

A No, we weren't told that they were coming from the steam. We were told they were coming from water that had been pumped over from containment into the AUX building floor and the stuff was coming from the AUX building floor. Maybe somebody can refresh my memory, but I don't remember anything about steam releases.

MR. CHIN: All right. That is all I have.

BY MR. HERR:

Q On the potassium iodide, I believe you stated that you were disappointed the potassium iodide was not put at locations where the people were.

A Where people were able to get it.

Q You don't mean that it was not distributed as recommended by HEW but that it was not put in the centralized locations?

A That's right.

Q In preparation for distribution?

A Right. Okay. One step further. Not giving it to the people. No, I think that would have been a major mistake. I wouldn't even request KI for our own people. Once the Health Department got a hold of it. So, we were thinking of making

it up in the laboratory ourselves.

Interestingly, all the FDA that were up there had their own little vials in their pockets.

Q Do you know where they got it?

A Sure. From FDA as part of the shipment.

MR. CHIN: In conclusion, this is an ongoing investigation, and although I have completed the questions I have for you today, we may need to bring you back, but hopefully not for further depositions. With that in mind, I would like to recess this deposition rather than terminate it, but I do thank you very much for your time and patience with us.

(Thereupon, the deposition of Mr. Gerusky was recessed.)

CERTIFICATE

I hereby certify that the proceedings and evidence are contained fully and accurately in the notes taken by me on the hearing of the foregoing cause, and that this copy is a correct transcript of the same.

Nancy O'Neill-Reusing

Nancy O'Neill-Reusing, Reporter-Notary Public
Notary Public in and for the Commonwealth
of Pennsylvania, with offices located at
1413 Old Mill Road, Wyomissing, Pennsylvania
My Commission expires December 13, 1982.

GERUSKY #1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

September 4, 1979

In Reply Refer to:
NTFTM 790904-02

Mr. Thomas M. Gerusky, Director
Bureau of Radiation Protection
Fulton Bldg., 5th Floor
P. O. Box 2063
Harrisburg, Pa. 17120

Dear Mr. Gerusky:

I am writing to confirm that your deposition under oath in connection with the accident at Three Mile Island is scheduled for September 19, 1979 at 1:00 p.m., in a meeting room at the Holiday Inn Town motel, 2nd and Chestnut Streets, Harrisburg, Pa. Please bring with you a copy of your resume and any documents in your possession or control regarding TMI-2, the accident or precursor events which you have reason to believe may not be in official NRC files, including any diary or personal working file.

The deposition will be conducted by members of the NRC's Special Inquiry Group on Three Mile Island. This Group is being directed independently of the NRC by the law firm of Rogovin, Stern and Huge. It includes both NRC personnel who have been detailed to the Special Inquiry Staff, and outside staff and attorneys. Through a delegation of authority from the NRC under Section 161(c) of the Atomic Energy Act of 1954, as amended, the Special Inquiry Group has a broad mandate to inquire into the causes of the accident at Three Mile Island, to identify major problem areas and to make recommendations for change. At the conclusion of its investigation, the Group will issue a detailed public report setting forth its findings and recommendations.

Unless you have been served with a subpoena, your participation in the deposition is voluntary and there will be no effect on you if you decline to answer some or all of the questions asked you. However, the Special Inquiry has been given the power to subpoena witnesses to appear and testify under oath, or to appear and produce documents, or both, at any designated place. Any person deposed may have an attorney present or any other person he wishes accompany him at the deposition as his representative.

You should realize that while we will try to respect any requests for confidentiality in connection with the publication of our report, we can make no guarantees. Names of witnesses and the information they provide may eventually become public, inasmuch as the entire record of the Special Inquiry Group's investigation will be made available to the NRC for whatever uses it may deem

appropriate. In time, this information may be made available to the public voluntarily, or become available to the public through the Freedom of Information Act. Moreover, other departments and agencies of government may request access to this information pursuant to the Privacy Act of 1974. The information may also be made available in whole or in part to committees or subcommittees of the U.S. Congress.

If you have testified previously with respect to the Three Mile Island accident, it would be useful if you could review any transcripts of your previous statement(s) prior to the deposition.

Thank you for your cooperation.

Sincerely,

Mitchell Rogovin

Mitchell Rogovin, Director
NRC/TMI Special Inquiry Group

Gerusky #2

Thomas M. Gerusky
Director, Bureau of Radiation Protection
Pennsylvania Department of Environmental Resources

Born: June 18, 1935, Fort Edward, New York

Present Address: 455 Poplar Church Road, Camp Hill, Pennsylvania 17011

Education:

B.S., General Science, Union College, Schenectady, New York - 1956

AEC Fellowship in Radiological Physics, University of Rochester, Rochester, New York - 1956 - 1957

Employment:

1957-1959 Health Physicist, Brookhaven National Laboratory, Upton, New York. Responsible for directing radiation safety program at the Hot Laboratory and the Cosmotron. Spent approximately nine months as health physicist at the BNL Graphite Reactor.

1959-1961 Health Physicist, Squibb Institute for Medical Research, New Brunswick, New Jersey. Responsible for radiation safety in radiopharmaceutical research and production facilities.

1961 - present Director, Radiation Protection Program, Commonwealth of Pennsylvania. Present title: Director, Bureau of Radiation Protection, Department of Environmental Resources. Responsible for directing a statewide program of radiation safety relating to all sources of radiation.

Professional Honors and Responsibilities:

Certified, American Board of Health Physics, 1962

Member, Panel of Examiners, American Board of Health Physics, 1968-72

Member, American Board of Health Physics, 1972-76

Member, Health Physics Society, 1957 - present

Chairman, Membership Committee, Health Physics Society, 1968-69

Member, Radiological Health Section, American Public Health Association

Chairman, Radiological Health Section, American Public Health Association - 1971-72

Member, APHA Governing Council, 1972-75

Member, Conference of Radiation Control Program Directors

First Chairman, Conference of Radiation Control Program Directors, 1968-70

Member, Executive Board, Conference of Radiation Control

Professional Honors and Responsibilities: Cont'd.

Program Directors, 1968-1971

Member, Surgeon General's Ad Hoc Task Force on Microwave Ovens, 1970

Member, Industrial and Professional Advisory Committee, School of Engineering, Pennsylvania State University, 1970 to 1978.

Member, American National Standards Institute N-12 Committee on Nuclear Terminology, Units, Symbols, Identification and Signals, 1967 to present

Member, Pennsylvania Hazardous Substances Transportation Board, 1966 to present

Member DHEW Technical Electronic Product Radiation Safety Standards Committee, 1976-1979

Member, Nominating Committee, Health Physics Society, 1976-1978

Who's Who in Government

Who's Who in the East

Gone to Jessica Tuckman – W.H. GERUSKY #3

confirm receipt at site with Gossick or Case

NRC PROCEDURES FOR DECISION TO RECOMMEND EVACUATION

Who Decides

1. Combination of consequences and times require immediate initiation of evacuation: Senior NRC Official on site recommends to Governor.

2. Unplanned event with substantial risk takes place or is imminent or situation judged excessively risky but there is time for consultation. Senior NRC Official notifies Governor and NRC HQ. Chairman makes recommendation to Governor after consulting with Commissioners if possible.

3. Planned event involving significant additional risk. Chairman and Commissioners makes recommendation.

Chmn. Hendrie –
H. Denton
Van (Site)

1, 5, 10 mi circles
can't do quadrants

need 4 hrs generally
48 hrs for hospitals
may need

POOR ORIGINAL

Unplanned Events

	EVENT	EXPECTED PLANT RESPONSE	RELEASE AND TIME	WARNING TIME	EVACUATION SCENARIO
1.	Loss of vital function or unplanned leaks.	Restore function within 1 hour	No significant change		Possible precautionary evac 2 mi; stay inside 5 mi
	Examples Reactor Coolant Pump Trip; Loss of offsite power; Loss of feedwater; Depressurization to go on RHR; Leak in Auxiliary Building	Switch to Alternate Function involving Primary Coolant in Auxiliary Building	Small leak less than 1 gal/hour		possible precautionary evac 2 mi; stay inside 5 mi
			Large leak 50 gal/min	2 hour	Evac 2 miles Stay Inside 5 miles
		Serious possibility of failure to restore a vital function See 2			

POOR ORIGINAL

These tables include a number of assumptions about activity and weather, chosen realistically. In an actual release, the release rate and weather should be evaluated as they are at the time, and the decision based on those values.

— conservative

(2)

	EVENT	EXPECTED PLANT RESPONSE	RELEASE AND TIME	WARNING TIME	EVACUATION SCENARIO
2.	Sequence leading to Core Melt	Maintain Containment Integrity (likely) with Containment Cooling	Design Containment Leak Rate	4 hour	Precautionary Evac 2 mi all around, and 5 mi, 90° sector, stay inside 10 mi in the 90° sector
		Containment expected to Breach	Significant release of core fission products	24 hour (time for containment failure)	Evac 5 mi all around and 10 mile, 90° sector, stay inside 15 mi
3.	Hydrogen flame or explosion possible inside reactor vessel	Mixture in flammable range			Precautionary 2 mi (?) + 5 mi, 90° sector, 10 mi
		Explosion; major damage Core Melt See 2			
4.	Evacuate or Lose Control Room	Loss of Control Treat like major release			Precautionary (?) 2 Evac 5 mi all around and 10 mi 90° sector, stay inside 15 miles

EVENT	EXPECTED PLANT RESPONSE	RELEASE AND TIME	WARNING TIME	EVACUATION SCENARIO
Planned Manuever	Probability of losing vital function	See releases unde loss of vital function	Timing of maneuver can be set to provide as much time as necessary	Precautionary evacuation 2 miles, stay inside 5 miles PLUS See outcomes under loss of vital function.

(4)

Action Guidelines

a. Notify evacuation authorities two hours in advance (if possible) to standby for a possible evacuation.

b. Projected doses of 1 rem whole body or 5 rems thyroid stay inside.

c. Projected doses of 5 rems whole body or 25 rems thyroid mandatory evacuation of all persons.

Assumes general warning already that some form of evacuation may become necessary.

Weather

The table is based on a realistic prediction of the weather for the next few days, based on the April 1 forecast which would result in high doses at a given distance. At the approach to decision time for evacuation, the appropriate meterological condition will be factored into the dose estimates to determine the evacuation time, sectors, and distances for the evacuation.

NRC is predicting the dispersion characteristics of the region for the currently measured meteorology as the incident progresses. Rain could lead to higher local radioactivity levels.

Heat Generation

The reactor core is now quite cool compared to the conventional design-basis calculations.

1. The reactor is new, so no fuel has more than 3 months equivalent operation, compared to 1-2 years average for other plants.

2. The neutron chain reaction has been shut down for over 4 days.

It should also be noted that the concrete basemat of this plant is unusually thick.

As a result of the above differences, calculations for this plant at this time predict that the core will not melt its way through the containment.

EVENT 1 Sprays & coolers operative

Time=0 Slow stop Core & water start Heat up

Time=100 min Core starts to uncover

Time=150 min Core begins to melt

Time=200 min Molten core is in lower head of reactor vessel, pressure is 2500 psia

Time=210 min Reactor vessel fails, containment pressure goes to 25 psia

Time=210 min Hydrogen burns, containment pressure goes to 67 psia
Steam explosion possibility - minor consequence

CONTAINMENT SURVIVES (Failure assumed 130 psia)

Time=10 hours Molten core has melted about 1 meter into basemat

Time=days Major problem - handle hydrogen, oxygen - maintain containment integrity

CAUTION:
- Keep sprays running
- Keep water many feet over molten debris
- WITHOUT RECOMBINERS Hydrogen continues to build up

BASEMAT SURVIVES

Event 1 Conclusion: This event should not produce major releases

Event 2 - Sprays and Coolers Failed Before Flow Stops

Time=0 to Time=210 min Same as Event 1 - containment pressure is 25 psia

Time=810 min Containment pressure is 70 psia

Time=1 day Containment fails due to steam (mostly) overpressure - about 135 psia

CONTAINMENT FAILS

Event 2 Conclusion: This event leads to major releases.