UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:

IE TMI INVESTIGATION INTERVIEW

of Gary P. Miller, Station Manager

Trailer #203
NRC Investigation Site
TMI Nuclear Power Plant
Middletown, Pennsylvania

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NRC PERSONNEL:
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SHACKLETON: This is an interview of Mr. Gary P. Miller. Mr. Miller is presently the Station Manager for the Three Mile Island Nuclear Power Station for the Metropolitan Edison Company. The time of this interview is 11:08 a.m. Eastern Daylight Time, May 7, 1979. This interview is being conducted in a trailer parked just south of the south security gate of the Three Mile Island Installation. At Mr. Miller's request, present from his company is Mr. William H. Behrle. Mr. Behrle is a Project Engineer with the Metropolitan Edison Company. Present from the U.S. Nuclear Regulatory Commission to conduct this interview is Mr. Dale E. Donaldson. Mr. Donaldson is a Radiation Specialist assigned to Region I. Also present is Mr. Dorwin R. Hunter. Mr. Hunter is an Inspection Specialist with the Performance Appraisal Branch, Inspection and Enforcement, Reactor Construction and Inspection. My name is Owen C. Shackleton. I'm an investigator assigned to Region V. Just prior to this interview going on tape, I presented to Mr. Miller a two-page document from the U.S. Nuclear Regulatory Commission setting forth the purpose and scope of this investigation, and explaining the authority of the U.S. Nuclear Regulatory Commission to conduct this investigation. This document also sets forth Mr. Miller's rights to refuse to be interviewed, to have any person of his choice present, and to refuse to give any signed statements. On the second page of this two-page document are three questions and Mr. Miller answered all three in the affirmative. At this time, to make it a matter of record on this tape, I'm going to repeat these questions. Mr. Miller, did you understand the text of the referred to document?

MILLER: Yes, I understood.

SHACKLETON: And do we have your permission to tape this interview?

MILLER: Yes.

SHACKLETON: And would you like a copy of the tape and a copy of the transcript?

MILLER: Yes

SHACKLETON: All right, sir. They will be provided. And now, Mr. Miller, for the now benefit of those persons who will be listening to this tape, would you please give your background and training and work experience in the nuclear field.

MILLER: One thing that I'd like to state in the beginning is, I have personally made up and written down a document for testimony in conjunction with the various hearings. That document is one I'm willing to testify under oath to, it contains some thirty pages, approximately. And I believe this document should be used as a reference to this tape. It was done . . . the basics were done at a time within two weeks of the accident, and I believe, that my recall and my logic for that day are best represented, to the best of my ability, on that document. My background, basically . . . I graduated from college

from the United States Merchant Marine Academy in 1963. At that time, I was involved in, essentially, Mechanical Engineering, plus I had advantage of taking the courses and participating in the Simulator program for the ship . . . the Nuclear Ship, Savanna. Following that, I sailed on Merchant vessels with my Merchant License for approximately a year, and worked for the government for a period of months, with the Maritime Administration. Following that, I became employed at the Newport News Shipbuilding and Drydock Company, in February of 1965. At Newport News Shipbuilding, I participated in, first as a Ship Test Engineer, then as a Chief Test Engineer, on various nuclear vessels, numbering approximately 15. I was qualified on the Nuclear Supply Units for submarines, carriers, cruisers and DLGM's. My last position at Newport News was Manager of Construction for the carriers Nimitz and Eisenhower. These were nuclear vessels. I came to Metropolitan Edison-GPU Company in 1973, January. My position at that time was Test Superintendent in charge of Acceptance Testing for Three Mile, Unit No. 1. Following successful commercial operation of TMI Unit 1, I was appointed Metropolitan Edison Unit 2 Superintendent. My basic function at that time was the planning, organization and intial staffing and preparation for the Met Ed portion of TMI 2. In 1977, I was named Station Superintendent for both Units of Three Mile Island. I held that position, plus the Unit 2 Superintendent position, until Unit 2 was commercial in December of 1978. In January, and it could have been February, of 1979, I was appointed Station Manager, Three Mile Island, reporting directly to Jack Herbein, Vice President-Generation, Met Ed. This same chronology is contained within my testimony.

SHACKLETON: Thank you very much. I'll turn the meeting over now to the Specialists from NRC. Mr. Donaldsor, you want to begin the questioning please?

DONALDSON: Thank you. Gary, what I'd like to start with is just some background information regarding the Emergency Planning Program. I've listened to several of the other tapes that you made earlier in the month, and I just want to pick up a few loose ends. Do you have an individual who is assigned essentially as an Emergency Planning Coordinator at the site?

MILLER: Yes. I would have to ask your definition of Emergency Planning Coordinator, though.

DONALDSON: What I mean by that is, someone who has essentially a prime responsibility for, kind of massaging everything together and ensuring that the various training programs and the various equipment maintenance activities, procedures are kept up to speed and implemented, implementation rating status.

MILLER: We do not have an individual assigned to only that function. My version, or my statement there, would be that our Chemistry and Health Physics Supervisor, Richard Dubiel, and our Training Supervisor, Dick Zeckman, are essentially responsible for that function. Additionally, each year when we prepare and conduct the emergency drills . . .

the preparation is to conduct that runs from about June until October, and I could be off a month or two . . . we generally assign a special supervisor the duties of that coordination, where we try to assure that the plan is brought up to speed and kept current for the drill each year.

DONALDSON: What is your understanding of Mr. Landry's position or involvement with the emergency plan?

MILLER: My understanding of Mr. Landry's involvement is that he would be the primary man, under Mr. Dubiel's structure, responsible for emergency planning. And he, in my mind, picked up the ball from Mr. Tsagaris who helped with this function in years past. This is not Landry's only duty, to my knowledge.

DONALDSON: I understand . . . be colateral with other duties.

MILLER: Right.

DONALDSON: Has this job function at all been assigned, either by yourself or by Mr. Dubiel, in any sort of a formal fashion, that is, through the issuance of a memo, so that station personnel are aware who the focal point for either comments, suggestions or problems with the emergency planning program might be directed?

MILLER: I believe I issued memos to that effect, but my recall is not good enough to pinpoint that. Additionally, each year following the drill, I assigned to specific senior persons, actions to clean up and make current items we found, and that I followed myself, along with people like Jim Seelinger, the Unit 1 Superintendent.

DONALDSON: Then Mr. Lanary in his preparedness functions, would be operating under the authority or direction of Mr. Dubiel, the Supervisor of Radiation Protection and Chemistry?

MILLER: That's true, but additionally, since it involved the emergency plan, if he were not obtaining the required cooperation then it would be under my authority that I would have him proceed.

DONALDSON: I would like to turn now very briefly to the training program and the training status in the area of emergency planning prior to the 28th. Could you briefly describe the training program and your input or support of the training program?

MILLER: In my mind, there are at least two phases to the program. One of them is an ongoing phase where the training department, under Zeckman in coordination with Dubiel and Landry, constantly, as a part of our recall effort, run training on the emergency plan, and so forth, and the actions required. Separate from that, on a yearly basis, for the station we do have the preparation for a series of

drills. We typically here conduct anywhere from five to eight drills. This is so that all the senior people get exposure and that all the shifts get exposure, and that we run, as we like to call them, advanced scenarios. And in this function we involve essentially all the personnel and contractors at the station.

DONALDSON: In relation to a drill, approximately what time frame is the annual retraining of the emergency response organization performed?

MILLER: There is one drill a year, even though there are five or six rehearsals, so to speak, on different shifts. The basic drill is either run at one or five o'clock, depending on the Station's Superintendent's decision . . . or Station Manager's, in my case.

DONALDSON: Is the training of the various teams . . .

MILLER: I should correct that. I proposed those times. I was specifically not told when the drill was run, as I participated, so I would have to back off there. I picked . . . I told people early in the year that they should pick those times.

DONALDSON: Is the actual training program performed just prior to the beginning of the drill sequencing, or is it conducted 6 months before, or approximately what time frame?

MILLER: To my knowledge, the training program for operations and other departments is ongoing during the year. About 2 to 3 months before the actual drill, we commence the preparation stage, which includes a lot of training, for and for persons like myself, that is my training, essentially.

DONALDSON: As of the 28th, were you aware that, or had you been apprised of the status of training at any time? Did you receive periodic reports of the status of the organizational posture?

MILLERL I had received periodic status. To go back a little bit . . . following the emergency drill in 1978, in which we participated and and the NRC witnessed the drill, we then took our action items and I reviewed those monthly with the superintendents and Landry, and the training people, as appropriate. Additionally, I participated, and I'm not totally sure I can remember the exact time frame, but I interfaced with the local fire departments at least once in 78. Additionally I interfaced with all the civil defense people and the State people, once in 78 to discuss interface and communications in our plan. Additionally, I attended the State Emergency Drill . . . which is not run just for radiation emergencies, it's run for a typical emergency . . . over at the State in December of 1978. That, I guess, would describe my involvement with the plan.

DONALDSON: As the Station Manager, were you apprised or kept up to date on the progression of the training program, as far as the response teams, went, ahead of hedule, behind schedule?

MILLER: Not in a great frequency, but yes, by exception . . . if something was not in its frequency probably closer monitoring was conducted by Mr. Dubiel and/or Mr. Seelinger, Unit 1 Superintendent.

DONALDSON: Do you know if, at any time immediately prior to the March 28, or a month or two before that, you might of received any status reports regarding the training posture of the organization?

MILLER: Not specifically, to my memory. I can't remember specifically.

DONALDSON: In looking at the training program and the drill program, it appears they're run within, say, a two or three month period. Have you had the opportunity, or have you thought at all, how that impacts on the, perhaps the cyclic nature . . . is there any cycling of preparedness that results in that kind of a schedule?

MILLER: I'd answer that question, but I think some of it would have to be taken as my opinion. I believe any time you prepare for something like a drill, you would be hard pressed not to say there was cyclic occurrence there, because you do tend to get more prepared when you know something is coming. But I felt, from my experience . . . the

four or five years I've run this drill . . . that you can run this drill at 2:00 in the morning probably better than we run it 1:00 in the afternoon with a full crew of people that are there on day shift, because the people you need are always on shift and they're always in the recall status. The communications we need for the drill are tested independently of all of this discussion . . . the .re tested at a frequency to assure their operations. So I feel preparedness was adequate, probably peaks for the drills, the way I see it.

DONALDSON: I'd like to turn from that aspect and talk just briefly about the provisions of the coordination aspects that exist in the plan, or your understanding of the aspects that exists, in terms of coordination with Met Ed Division personnel, GPU, and consultants . . . their authority, responsibility, and so on, so forth. Why don't we start with Met Ed, GPU, Mr. Arnold, Mr. Herbein.

MILLER: Normally, with respect to the emergency plan, and not discussing an accident as we've been through, I would have interface with Jack Herbein and it would be his responsibility to contact GPU. I would not have . . . hesistate to contact GPU, but our organization normally functions such that I would, either him or I would of done that automatically. But as a part of the plan and a needed part of the plan to accomplish it, I don't need GPU.

DONALDSON: In a response scheme, had you ever included the interface with, say, Jack Herbein, in any of your drills to test the inner working . . . the interface?

MILLER: The Jack Herbein interface was tested in every drill. I might also state that it's pretty normal for me to call Jack Herbein on instances of much less consequence that this to assure that he was cognizant of the activity because of the importance of these units to our company.

DONALDSON: Does this interface normally take the shape of coordination, or in other words, with you actually running the station operation, in keeping Mr. Herbein apprised, or is it more group decision-making, if you will, in terms of what actions to be taken?

MILLER: With respect to the emergency plan, it would of been a notification with the decision-making fully mine. That would of been the initial way you would go with that and there would be no need to have any group decision-making. As you get into any situation, from this type or a technical problem, the discussion and interface would be one where it would be a mutual, beneficial type thing to draw on everybody's experience but the decisions were clearly at my level at the station, as far as initiating the plan and carrying it out.

DONALDSON: As an event progresses . . . and I guess we can relate to it, in fact, that as this event progressed, and you had fulfilled your responsibilities under the response plan, I think we can assume that people don't always have a meeting of the minds. Who, to your understanding, either prior to this event or during the event, had ultimate authority and responsibility for final decision making in various actions?

MILLER: With respect to the station and the emergency plan, for that first number of hours up to . . . in my testimony I have placed the time at about 8 PM . . . until 8 PM at night on the 28th, I made the decisions with respect to the emergency plan, the station, and the actions taken within the unit. As I stated in my testimony, I formed my own, as I call them "emergency command team." I drew on them. They talked to other people in both my management, in GPU management, and B&W, but decisions that were made in the NRC, as a matter of communication, took advice from all sources, but the decision making was done at my level and there was no question of that.

DONALDSON: After 8 PM, did you or Mr. Herbein have a discussion as to whether or not you would move to a new posture, that is, he would begin to assume more of the directive actions?

MILLER: Yes, and I'm guessing at 8 PM. It could of been 8:30 or 9 or 7:30, but somewhere in that evening, following . . . the closest event

that I could pin is after the reactor coolant pump was running and the stability of the unit was kind of, a lot better than it had been earlier. Jack took charge of the operation and I reported directly to him. I essentially stayed on shift as the Emergency Director and as the Superintendent on shift.

DONALDSON: I think . . . does this kind of fit in with the recovery procedure? Would you say in your own mind you entered the recovery phase?

MILLER: In my own mind, I entered the recovery phase. But if we had had a small leak or something, it would of been in the recovery phase and looking to go back. This obviously was of a much larger scope so the recovery phase was much longer.

DONALDSON: I wanted to make that distinction because it's important to know when the command and control shifts.

MILLER: Yes, in my mind, it shifted after we started that pump. The unit was stable and we're looking at recovery and looking at longer term.

DONALDSON: Then at what time, or how did Mr. Arnold begin to phase in or fit into the organization in relation to yourself and Mr. Herbein?

MILLER: I'm not sure of the exact timing there, but I believe probably by the next day, the senior company officials in GPU and Met Ed had formed an organization where Arnold was in charge of the recovery, with Herbein having the operations portion reporting directly to Arnold, and myself reporting to Herbein. Arnold also had other functions under him, such as engineering, and advisory groups that were formed in a very quick fashion to look at increasing the stability of the unit and towards recovery and stopping of the release.

DONALDSON: There're about 4 or 5 things that relate to this inter-coordination between the division support and station, I'd like to pursue just to get an idea of how this intercoordination worked. I believe there were some discussions between yourself and Mr. Herbein relating to turning off the ventilation system in the plant - do you recall when that system was turned off, first of all?

MILLER: I recall that the discussion but I don't recall when that ventilation system was turned off, specifically.

DONALDSON: Who made the final decision that it would be turned off?

MILLER: Are you discussing on the 28th?

DONALDSON: I believe this was the 28th when you had the backup of the activity in the buildings, and eventually you restarted the ventilation system.

MILLER: Thinking back now, I do recall some discussion. I had the final decision. Jack and I did have considerable discussion on the ventilation systems and, at appropriate points I did secure it to attempt to see what it did. At the time we secured it, as I remember it, the activity level in the control rooms became such that I was worried about them becoming inhabitable, and therefore I made the decision to turn them back on because in my mind we weren't stopping the release.

DONALDSON: Your discussions . . . were they in the form of, in total agreement with one another, was there any pressure from one end?

MILLER: There was pressure from his end . . . there was pressure from Jack's end in two areas: one was that the outside world felt that I was releasing radioactive steam. In fact, I was not. The steam that was being released was coming from the alpha "A" Steam Generator which had been sampled and we had a guy up on the roof. But there was a conflict in information. People thought that the "B" Steam Generator was steaming. To my knowledge, it was not. Secondly, the ventilation . . . as the wind died during the day, the readings onsite got to levels of 70 and 80 at various points. It would be like you get bursts of it. Of course, we had taken people of the site and sent people home and taken this kind of actions, searched all the buildings. Jack was trying, was pressuring me to stop the release. I didn't think we could stop the release. I was of the opinion we should run

through the filters. Jack and I did have some discussions where we were not in total agreement, but I made the decision of turning on and off ventilation, and for the most part, I ended up with it back on on the 28th, to my memory, because of what it was doing to us in the control rooms and the Emergency Control Center, etc.

DONALDSON: Outside of that discussion, would it of ever have occurred to you to turn off the ventilation system.

MILLER: I considered turning it off. The discussions we had, and the personnel that I had advising me, I didn't feel like it stopped the release. We were taking action on . . . Jack was not totally aware of all the internal action I was taking. I think it's . . . you've got to remember that the number of items, and the number of calls that I participated in were of a very . . . I don't know how to describe it, but the distress level was very high. I was trying to proceed in a caution fashion with the information that I knew existed. I didn't feel Jack had all the information I did, and I was clearly in charge of the event, and he never disputed that. He discussed with me why I would not do something he would request, and we discussed that fairly openly, as we have open discussions from day 1 on this site. I felt we were designed to ventilate, as we were ventilating . . . I didn't think we were designed for this accident . . . but I felt that ventilation, knowing we had filters, I felt shutting it off would not stop the release, would just simply contain it inside and it would possibly

leak out anyway, as most of the buildings are negative pressure design, and I was more concerned with it not getting out unfiltered in that case. We were doing a couple other things. We were trying to . . . we toured the auxiliary building. We were looking for areas where the release was occurring from. We had checked Containment Isolation. We were trying to troubleshoot the vent header. We were laying poly on the floors, attempting to cover the water. We thought we might be offgasing or getting it that way. The thing that was making this so slow and painful was there was a lot of radiation levels in the auxiliary building that were very prohibitive. So with Richard Dubiel's help, we were proceeding very cautiously to avoid overexposures, to the practical extent, which was an item we had to be very careful of because the operators, maintenance and technicians were willing to do about anything to help us that day, and I was trying to be careful we didn't overexposure somebody without the benefit of being involved, that I clearly understood.

DONALDSON: You mentioned that you thought, perphaps, these discussions or the idea to turn off the ventilation, came from conflicting information that people had received . . . Jack was receiving pressure from outside sources. I wonder if we could, just for a minute, touch on the established provisions for press releases and getting information to the public, what is the normal method we would have expected to see, for the release of information?

MILLER: The normal method, to my knowledge, within Metropolitan Edison would be through the communications persons . . . Mr. Schweiker is Vice President, and Mr. Fabian is the normal man I deal with.

DONALDSON: These releases then, these press releases . . . they are coordinated through you, from the site?

MILLER: For normal times and even for problem areas, generally myself and Jack Herbein have an input to their information, and the Communications Department puts out the actual information. We have an input to it to assure its accuracy.

DONALDSON: Do you have provisions for coordinating any press releases or public statements with the State of Pennsylvania?

MILLER: I just don't remember. I think we do, but I don't remember specifically. On the 28th, I specifically instructed all the people in the control room. They did not talk to anyone in the media or the press, that anything was, anybody who called in was told to call Mr. Fabian, who I expected to handle the State or the media interface.

DONALDSON: I think Owen would like to interrupt here.

SHACKLETON: We'll take a break for just a minute while I change the tape. The time is now 11:37 AM, Eastern Daylight Time, May 7, 1979.

SHACKLETON: This is a continuation of the interview of Mr. Gary P. Miller. The time is now 11:39 AM, Eastern Daylight Time, May 7, 1979. Continue, please.

DONALDSON: When we turned the tape over, Gary, we were talking about press releases, dissemination of information to the public, I believe on the afternoon of the 28th, that you were called from the plant . . . I don't know if "called" is the right word . . . we'll say you left the plant to proceed to the Capital to brief the Governor, is that correct?

MILLER: I was requested, and essentially directed, to attend a briefing . . . I thought it was with the Governor, but I think it was the Lieutenant Governor representing the Governor, in Harrisburg. I was also told to collect as much information as I could prior to going to Harrisburg. I assigned a Senior Engineer to collect information so that we could provide a briefing in Harrisburg.

DONALDSON: You mentioned you were directed . . . by whom were you directed?

MILLER: I was directed by my management, Jack Herbein.

DONALDSON: Did you have any discussion as to the prudent nature of you leaving the plant?

MILLER: In a personal sense, I objected to leaving the plant. That was based on the fact that I, at the time, didn't see how I could leave the plant. I was fairly totally involved in the operation. I, in my own mind, did leave the plant at the time I chose, and I did put Mr. Joe Logan, Unit 2 Superintendent, in charge before I left. And he was fully cognizant of all the situations. The plant was not in, what I considered, it's final stable condition, but we had accomplished what I had hoped to up to that point, and I did not consider it unsafe to leave the plant. I did not agree with having to leave the plant, but I didn't consider the safety of the public was compromised or I would not have left. Additionally, I carried a beeper. And I arrived in Harrisburg . . . I had a man on the phone with the Unit, so that I could keep in constant touch with what we were doing. So even though I left the Unit, I felt I left it in capable hands and I was communicating with it.

DONALDSON: Was there any thought or any discussion that possibly the Lieutenant Governor could of been briefed over the phone? What was the thought process that it had to be an inperson kind of thing?

MILLER: I don't specifically know how the decision was made to go to the Governor's . . . the Lieutenant Governor's office. I strongly objected to that occurring at that time in the afternoon. Strictly from an internal selfish standpoint, I didn't think it was an appropriate time. But of course, I was not looking at it as my responsibility to

worry about the Governor. My responsibility was to make sure that the emergency plan and that the unit conditions were conducted properly, and that's the way I viewed it.

DONALDSON: I wonder if you could, if you would, tell us of the discussions that might of gone on in the car . . . let me back up. Did anyone, did you take anyone else from the plant with you?

MILLER: Yes, I had Mr. George Kunder, who was the Unit 2 Technical Superintendent. I had him do the assembling of information in the hour or two before we left the plant. We actually . . . I believe I had notification somewhere around noon I was to go to the Lieutenant Governor's or Governor's office. I, at that time, was also told to assemble some pertinent data and information and I was attempting to do that through George Kunder so that it did not remove my direction effort within the unit. So I took George with me to Harrisburg to brief both Herbein and myself on the way over.

DONALDSON: I believe you mentioned that the time at which you left, you chose to leave, and that was based upon your evaluation that, at least the plant was in such a condition that the public health and safety would not be jeopardized. I wonder if you could just elaborate on the evaluation of the situation, as you saw it, at that time. Were the releases continuing, were the releases going down?

MILLER: At that time, I think . . . at that time, my evaluation . . . I think, number one I should state that the discussion preliminary to me going to Harrisburg was a very strong discussion between Herbein and myself, but that is not untypical in the kind of discussion that Jack Herbein and I have on typical problems within these units. It's frank and it's open and it's direct, had I had any question of the safety of the public or the unit, I would have not left the unit. My evaluation was based on a couple of items. Number 1, at that time in the day . . . that's talking around noon to 1 o'clock . . . I don't have memory of any offsite readings, other than a few, that were greater than 1 mR per hour. I don't have memory of iodines being above background. Our device was showing above background, but we had sent out and had a separate calibration run on a sample and we had found our device was reading above background but the actual reading was below so I had no offsite readings that I was aware of. The emergency plan and all communications were fully in effect and working. The biggest item in my mind was that we were on the phone with the Bureau of Radiological Health, they had no disagreement, at that time, of our actions. There was no preparation for evacuation; things were in alert. The Unit itself . . . we had just . . . and also this is backed up in my testimony in more detail . . . we spent the morning, within our own minds in that control room, not being totally convinced the core was covered. We couldn't start pumps, they cavitated. We knew we had steam bubbles. We knew we had to pull pressurizer. I had told Mr. Ross that we did not secure HP injection without me personnally

being involved. We were not, in our minds, convinced the core was totally covered. And therefore, we had made a decision to go down in pressure to the core flood level in pressure, which is like 600 pounds or lower, and therefore, that core flood comes in two separate nozzles on top of the reactor; our theory or speculation was, from a technical standpoint, were the vessels significantly empty, the core flood tanks would drain. We had gotten down to about 440 psig with a small level decrease in the core flood tanks. When I left I felt that . . . number 1, the Emergency Plan was in effect; number 2, we were not near an evacuation criteria, and did not appear to be approaching one; number 3, the unit was essentially stable, certainly not ultimately stable. I was convinced the core was covered and we were some getting some heat removal, and thirdly we had sent all but essential people home. We had no one I knew of, that was becoming overexposed or obtaining radiation readings to any significant level.

DONALDSON: At that point, when you left, did you feel that you had at least a perspective that you felt things were going to be able to be placed under control, or were you still unsure as to which direction you were going to take? What was your feeling? Were you still unsure, or were you certain that things were, you had a handle on the situation?

MILLER: I was sure that we were stable. I had not convinced, we had not convinced, I had not convinced myself or the group I was using for my command group, that we at a nearer point of getting on decay heat,

or getting a reactor coolant pump running, which were the two, conditions we would of like to have gotten to at that time. We were no' approaching those, but we essentially had water to the core, we had the ablity to steam, so we felt the Unit was stable, but certainly not . . . we certainly weren't in our final direction yet, nor were we that close to it.

DONALDSON: What was your feeling about the potential for more significant problems developing, and by problems, I mean primarily in the terms of releases of radioactive material offsite. You stated that the plant itself . . . the releases were low and at that time things appeared to be stabilized. Had you, in your own mind, formed a picture of the potential for more serious consequences?

MILLER: That's a hard question to answer. We weren't to . . . if I look at Friday, the 30th, I realize more about the releases on Friday than I did on Wednesday. On Wednesday, we had not seen the releases to any extent. And the worst problem we had in the Unit was the auxiliary building, which had a lot of airborne, had a lot of radiation, so I hadn't seen a public consequence and I didn't feel that there was a potential to be more, I thought if anything it would be getting to get towards terminating the incident, not being cognizant of what I know now about the iodines and all the things that occurred in the next 2 - 3 days.

DONALDSON: At this point in time, were you technically convinced that a bubble had existed in the primary system:

MILLER: I was technically convinced at 7:00 in the morning that we had bubbles in the hot legs, and none in the pressurizer, and one in the dome of the reactor. I must say that I also was convinced that we had failed fuel, to some extent, because of, I believe, the radiation monitoring system. I did not feel that it was to the extent that we've now seen printed. I didn't need to . . . I guess the best way I could describe that is I didn't need to evaluate whether we had 1% or 100% failed fuel, I was convinced we had a serious radiation problem from the beginning and that we had steam bubbles.

DONALDSON: Then, at this point in time, containment was fairly high, I believe?

MILLER: Yes, you're talking in the order of 50,000 R on the dome monitor.

DONALDSON: Did you at all evaluate and, in trying to get your head in order for discussions with the Lieutenant Governor, place through your mind the potential for unplanned releases from containment, or from other airtraps, or liquid sources in the facility?

MILLER: The containment, we felt, was stable. The reasoning there would be that, up till 2 o'clock, and I'm aware we had a hydrogen excursion, I was aware at 2 o'clock we had an excursion, but up till that point, we had not seen anything above 4 - 5 pounds in the building. The building in the containment isolation had been verified more than once, and we didn't have releases from the building that I knew of. Now we did have communications paths with the primary system, which were causing some releases through things like the makeup tank and the vent header. We were trying to get a handle on those. We did not have a good handle on them, but the people who were doing that continued to do that in my absence. The vent header is a complicated system and it . . . with the radiation levels we had, it was very hard to troubleshoot.

DONALDSON: On the car on the way up, what discussions ensued between yourself, Mr. Kunder and Mr. Herbein, regarding, "what are we going to tell the Lieutentant Governor, what's the situation in which, what direction is it heading? "

MILLER: We basically, briefed Jack Herbein on the plant status from the time I had arrived that morning at about 7 o'clock, went over that him, went over our course of action with respect to our goal of getting either on decay heat or getting a reactor coolant pump started, and informed him of the current status. We probably spent . . . and this not totally clear . . . probably spent most of the time, as I remember, discussing the readings we had had, and where the wind was from the

time we started, and the basis of the emergency plan and the communications that were set up, so that he clearly understood why we hadn't recommended and the State had agreed on any evacuation of any part of the town, or of any protective action.

DONALDSON: Did you at all have any discussions revolving around the tone that your discussions would take. In order words, you had reached some agreement or understanding with other technical elements of the State that the potential for increased effects offsite could certainly be handled within the constraints, that now you were going up to talk to the Lieutenant Governor . . . Did you at all feel that perhaps he might not understand what you were telling him? I guess what I'm saying, was there an attempt to make it simple, so he would understand?

MILLER: Dale, there was an attempt to put 15 years of nuclear power into 5 minutes, as far as making the conditions simple, and making the understanding simple and making the . . . And also, there was a clear discussion of the fact that we would be very honest and very frank and put out exactly what we knew at that moment. And that's the way it went. Now, I'm not aware of why we were even going to Lieutenant Governor's office. I was not involved in the decision to go. In other words, I wasn't involved in the discussions of going to there. I don't know who in the company even made that decision. I know who told me to go.

DONALDSON: When you did arrive at the Lieutenant Governor's office, basically, if you can, in another one minute, summarize it even further, and let us know . . . was he apprised of that fact that you had thought the core was uncovered, that there was core damage, a bubble existed, and the direction that you were heading?

MILLER: When you say core uncovered, we had all, I think, come to the realization there was fuel damage. I don't know that we were sophisticated enough to discuss core uncovering, but we did feeling that cooling hadn't been adequate. We knew that from our experience and we knew we had some damage from the readings. We didn't discuss percent at failed fuel or percent of uncovering, like you would as an analyst afterwards. But there was a discussion of how the trip had . . . you know, we went through the sequence of events from the trip, to the pressurizer, to the fact that we knew we had steam bubbles in the loops, we couldn't run a pump, and, you know, that we were still on HP injection . . . this sort of technical discussion. And then Jack picked that up and attempted to explain that in the Lieutenant Governor's office in a technical sense.

DONALDSON: Did anyone discuss the status of the radiological end, that is, the amount of radioactivity, in general terms, that was in the containment, that was on the island, available for release . . . anything of this nature?

MILLER: I don't remember that specifically. I know we discussed the specific readings of the monitors in the building and of some of the other radiation monitors. From that extent, yeah. I don't know that we, at that time, even thought about what was in the building ever getting released. I guess we assumed the building would handle its integrity, in other words, the potential . . . if you took the building away, there would be a tremendous release in the area. I don't believe we put it in those kind of terms.

DONALDSON: In other words, your discussions were more positive in nature, that is we have this stuff in here but our engineered safeguards, so on and so forth, are such to take care of it. You didn't deal too much in the potential of the "what ifs".

MILLER: We didn't deal with potential if the building was to, say, disappear, and there would be a release. We dealt more with the fact that we had a damaged plant, we were trying to correct it, and then very strongly dealt with the readings we had on and offsite and the bases for our decision-making. And also we dealt . . . it turns out that Geruski I think was there, Mr. Geruski of BRH (Bureau of Radiological Health) to back up that information or that communication.

DONALDSON: Let's turn from that ...

MILLER: I think you should also clearly . . . I don't believe myself or Herbein, on that day on the way to the Governor's office, really conceived that we were into a year and half recovery. I think we conceived we had a damaged unit which we could put back together in a scheduled planned fashion, and it was talking days or weeks rather than years. Now, I'm saying our minds had not grasped . . . mine didn't until two days afterwards . . . the magnitude of the damage we had incurred. So our discussions were framed around "here's what we got, this is how it happened, to our knowledge now, this is what's offsite, and this is the action we're taking, and why."

DONALDSON: It was framed in the reference of your technical knowledge and trust in the way your various systems operate.

MILLER: Yes.

DONALDSON: What I'd like to do is turn from that interface, that is, interface with the State, Lieutenant Governor, Met Ed, GPU, and discuss any other interfaces you may have had with other agencies, NRC included, that may have requested or directed that certain actions be performed, certain samples be taken, during the first three days. Now, we're interested in the period from 28th through midnight on the 30th. Were you receiving what you perceive to be, requests or orders from other agencies, other people, other than Jack Herbein, to do certain things?

MILLER: In my mind you have to, from my part of this operation, you have to separate the 28th from the 29th and the 30th. On the 28th, we had called, specifically called the NRC, both Region I, the RAP (Radiological Assistance Plan) team which came in here; we had a plane overhead and so forth; people like Sid Porter of Porter-Gertz, a Consultant in Radiation; Radiation Management Corporation. We had drawn on all these, plus our engineering organization, through Dick Kling (phoenetic). We had drawn on all these people, and the State, to help us in the coordination and the samples that we should be taking. And that was handled, not by me specifically, but through Dick Dubiel, mainly, that first day. And he was interfacing with various personnel and probably had a lot of conversations I was not aware of. He was briefing me every twenty to thirty minutes, and he was briefing me on the problem areas. I'm sure he was sampling, he was aware of a lot of other discussions about things. Now, from the 29th and 30th on, through Jack Herbein and his organization, I think we did a lot of increased sampling, and we had a whole sampling program underway, that I'm not aware of the details on.

DONALDSON: There are three instances that seemed to continue to crop up, and we've been trying to find out who had requested that these actions take place, and we get this nebulous "they did". And I think . . . let me just mention these and maybe you can shed some light on who "they" turned out be. The first item was the reactor coolant sample on the morning of the 28th, and that was after, of course, the

high activity had been found in the sample lines. Do you recall where the request for that sample came from?

MILLER: Do you mean the sample that helped lead us to the fact that we had the radiation?

DONALDSON: It would of been the one that Mr. Houser and Mr. Velez took ...

MILLER: Before 7:00 in the morning?

DONALDSON: No, it would of been after. It was the first one after the sample lines had been measured as having ...

MILLER: Okay.

DONALDSON: . . . High activity. Someone then requested that a primary coolant sample be taken.

MILLER: That would of had to have been between Mr. Ross, who was in charge of operations, and Mr. Dubiel, that the decision would of been made to request that sample.

DONALDSON: You don't know whether it came from outside of your organization, or whether it ...

MILLER: I do not specifically know.

DONALDSON: There was another entry that was made and it had to do with, I believe, adjusting of seal water flow . . . Do you recall who within the organization, requested that?

MILLER: Are you talking reactor coolant pumps seals?

DONALDSON: I believe it was. Do you know Dorwin, which one was it?

HUNTER: I believe it was, yeah.

MILLER; There were two areas that caused this concern, to my memory. One was that we wanted to keep . . . we had problems with letdown: we didn't have letdown. You know, if I had to pick three items within the unit, we had the pressurizer full and we didn't have many heaters. We were trying to work on that. We had reactor coolant pumps having problems with their lift pumps, their oil pumps. Additionally, we were trying to keep the seals in position to give us the maximum possibility for pump restart, which was one of the things we felt would help us. And letdown was something that didn't exist too well. We couldn't read letdown because it was so low and we were injecting seal water. We decided . . . and I think that through me . . we decided to isolate as many seals, as much seal injection as we could, as I remember. And we were down and actually manually did that, to my

knowledge. In an attempt ... you know, our goal was to essentially end up with a full plant with pressurizer control. And my memory was that we made that decision to isolate those seals on that basis.

DONALDSON: Under your emergency organization, what group or emergency group would have performed that action?

MILLER: Underneath Mr. Ross, to request that action and approve it through me, it would have been Mr. Dubiel who would have provided the Health Physics monitoring and input, and I would have actually looked to Dubiel to tell me that . . . to approve the entry as far as radiation is concerned and exposure to the people.

DONALDSON: Would the repair party have performed that action?

MILLER: Dan Shovlin, Maintenance, would have actually, along with Ross, would have made the decision who was the best man to go in. I might state that it might turn out to be an operator in this case, since we were interested in someone that knew exactly where to go. The decision would have been based on who would have known where to go, what valve to turn, so we wouldn't fumble around doing it.

DONALDSON: Under the normal organization, to whom does the repair party report?

MILLER: Dan Shovlin.

DONALDSON: And to whom does Mr. Shovlin report to?

MILLER: At 7:00 in the morning, I appointed Dan as in charge of emergency maintenance, so from 7:00 . . . when I made the assignment, say, at 10 after 7:00, I placed Dan in charge of emergency maintenance for the day.

DONALDSON: Then does . . . do you have Mr. Shovlin working directly under you?

MILLER: Yes. And in fact, when we sent maintenance people home that day to minimize the number of people on the site, he made the decision over who stayed and who went in maintenance, for that very reason.

DONALDSON: There was another request, and I believe another one of these nebulous "theys", requested that some filters be changed, and I believe they were demin !demineralizerl filters, and the dose rates in the area were approximately 1,000 R per hour at the time. And from information we have from other interviews, the job is approximately a one half to a 45 minute job, and there was some discussion between the people who had been asked to change these filters and some individuals who were requesting that these filters be changed. Did you have any involvement with that discussion at all?

MILLER: When you say demin !demineralizerl filters, is that the seal injection filters or is it purification demin?

DONALDSON: They were not sure of which filters they were. They might have been . . .

MILLER: My guess would be demin . . . my guess would be purification system filters in an attempt to figure out why letdown was zero. I vaguely remember some discussion, not specifics, but that would of been between Mr. Ross and Mr. Shovlin and Mr. Dubiel, it would seem to me it would have had to be amongst that group.

DONALDSON: In your technical opinion, were there any maintenance activities, repair activities, either suggested or actually performed, primarily, during the period of the 28th through the 30th, that were emergency in nature, and by that I mean, had a direct bearing on the continued stabilization of the plant and that if the maintenance were not performed it would result in a degradation of conditions and a possible increase in the impact?

MILLER: That's a hard question, when you get to specifics, and I would have to depend on discussions with people like Shovlin and Mike Ross and Dick Dubiel to help further bring out items. But I still separate the 28th from the other two days. On the 28th, items associated

with pressurizer heaters, with letdown, with the lift pumps for the reactor coolant pumps, with the sump pumps for the auxiliary building . . . items of that nature were considered by me to be, and reading of things like incore temperatures and also installing of recorders for primary, those items I considered to be vital to the stability, or the defintion of stability, for the Unit. On the 29th and the 30th, I think you could have expanded that further in the area, such as ventilation filter systems, where there might have been required changes or discussions of changes or checking of lineups, this type of thing, involving the . . . I would have considered, because we would have considered a release to the public, as much as anything else, to contributing to the stability of the event.

DONALDSON: Under your emergency organization, and keeping in mind the fact that you have to make re-entries for any number of reasons, who in the emergency organization is authorized to authorize people to take exposures that are consistent with, say, the NCRP or ICRP recommendations for emergency risk doses?

MILLER: I think we should state openly for this tape that I'm using no reference material in the room here. During the 28th and 29th and 30th, I would of used . . . I think it's fair to remember I would not of, I used my procedures and my plans as to, as clear reference documents or I had someone read them to me. You out of tape?

SHACKLETON: No go ahead and finish.

MILLER: What I'm trying to say is that I would have . . . I'm operating off the top of my head now, I not have been that day . . . I would have said "please to show me the emergency procedure or the emergency plan or the RWP procedures, so I know what I'm looking at." I was the guy who clearly authorized any exposure that day. Dick Dubiel, I gave the authority to authorize stuff that would not be an exception. For instance, if we, if Dick, if a guy was going to get within his weekly limit or his quarterly limit, Dick Dubiel could authorize that, but if a guy was going to be in an area of over that, where could get more than that, or where he would be in a very high area, Dubiel would personally come and get my approval. So I approved all exposures that day under my umbrella and, specifically, any of them that were significant would be run through me, and were.

SHACKLETON: Gentlemen, we'll turn the tape again and the time is now 12:08 PM, Eastern Daylight Time, May 7, 1979.