## UNITED STATES OF AMERICA

## NUCLEAR REGULATORY COMMISSION

1	In the Matter of:
2	IE THI INVESTIGATION INTERVIEW
2 3 4 5 6	of Thomas L. Mulleavy Radiation Protection Supervisor
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8	Trailer #203 MRC Investigation Site TMI Nuclear Power Plant
10	Middletown, Pennsylvania
12	(Date of Interview)
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21	NRC PERSONNEL:
22	Dale E. Donaldson
23	Thomas H. Essig Gregory P. Yuhas
24	William H. Foster Mark Resner 895 253
25	und beauer

FOSTER: The following interview is being conducted of Mr. Thomas L. Mulleavy. Mulleavy is Superintendent ...

MULLEAVY: Radiation Protection Supervisor.

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FOSTER: Okay. Three Mile Nuclear Power Facility. The present time is 6 5:01 p.m. Today's date is May 21, 1979. The place of the interview is 7 Trailer 203 located immediately outside the south gate of the TMI site. Individuals present for the interview are Interviewers Dale E. Donaldson, Radiation Specialist from Region I, Thomas H. Essig, Chief, Environmental and Special Projects Section, Region III, Gregory P. Yuhas, Radiation Specialist, Region I. My name is William H. Foster. I'm a Senior Inspector Auditor with the Office of Inspector and Auditor, NRC, and I'll be monitoring the interview. Also present is Mark Resner, Investigator with the Office of Inspector and Auditor. Mr. Mulleavy was previously interviewed as part of this investigation on April 24, 1979. At this point I'm going to turn the inteview over to IE personnel.

ESSIG: Tcm, I want to go over a couple of things with you which are...sort 19 of arised from either the testimony that you'd given us previously which 20 has now been several weeks ago, and also relates to testimony that was 21 taken from others which, they may have given us a slightly different story 22 regarding a particular thing than you did. So I have a few followup 23 questions. With respect to the previous interview of you back on the, I 24 think it was the 24th of April, one of the points that I had questions that 25

I've asked of you was how was it determined when you should be taking an 1 air sample and you responded, and I'll pretty much quote your response, you 2 said, "by the wind speed, if they're going to arrive before the plume they 3 would take a background reading and stay there until they saw an indicated 4 upscale reading then they would be directed at that time to take an air 5 sample." And that's about what you said. It's almost an exact quote of 6 your words. The question I have is either you had stated or someone else 7 had stated that the goal was to get, was to collect air samples on an 8 approximately hourly basis in the plume and based on the words that I had 9 just quoted it seems to me that you'd have to be depending on the plume 10 changing direction quite often so that you'd be, you'd have a team out, the 11 plume would sort of mover over to where the team was, you'd see an indicated 12 upscale reading on your instrument and you'd take the sample from the 13 plume. The question is during the first three days there were a number of 14 occasions when the plume was pretty much in the same direction for an 15 extended period of time. For those particular situations do you know what 16 instructions might have been given to the teams with respect to the collection 17 of an air sample?

MULLEA/Y: I'm not sure where this hourly basis came from, if you had a continual stream. I don't believe I said that, and in our particular procedure it doesn't state every hour one would be taken.

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ESSIG: Okay, now I don't, I would agree. I don't think that it was you that said that. It may have been somebody else because I had asked one of

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the other people we interviewed approximately how long or how often were 1 air samples collected and several people had told me well we tried to get 2 them on roughly an hourly basis. We didn't always make it. 3 4 MULLEAVY: That true. No, we didn't always make it on an hourly basis. 5 6 ESSIG: With respect to the, going back to the words that you used again, 7 you said how is it, I asked you how is it determined when we should be 8 taking an air sample and you said "by the wind speed." ... 9 10 MULLEAVY: I think what we were talking about there, if I sent a team to a 11 specific point and they arrived, again the wind speed being a criteria, if 12 they arrived before the plume was there, depending on how quickly they got 13 there and where they had to go, the time that they arrived at that point 14 would determine whether they were there ahead of time, before the plume 15 arrived. So therefore, I said that they would wait if they arrived ahead 16 of time and we would determine that from the ECS, we would ask them then to 17 wait until they saw an increase in their beta gamma level reading, and then 18 to begin their air sample. We had calculated ahead of time that the plume 19 would be at this spot at that particular time and if they arrived ahead of 201 time, their instructions are to wait until they see an increase and then 21 begin their air sample. Now, we have also stated that they take their air 22 sample, then they remove themselves from the plume and therefore, this 23 hourly basis might not, they may not get back in an hour inside the plume 24 or if the plume should shift. So, it would be very hard to say that the 25 frequency would be an hourly basis. 895 256

ESSIG: Okay. I think I see what you're saying when you are talking about the situation where you do have the plumes shifting, but for those instances where you had reasons to believe that the plume was in roughly the same sector for a number of hours and...

MULLEAVY: The frequency basis would be, an hour would be a fine basis on which to take them. But we are not and have not stated in the plan that it would done on an hourly basis in a steady plume.

DONALDSON: Tom, can I interject a question real quick? We were talking this over someone the other day and the question that came to mind is how did you know that in fact they were in the plume?

MULLEAVY: By an increase in their reading and also by calculations from the ECC that they should be there and the plume should be there at the same time.

DONALDSON: Tom, did you determine then from that calculation or from the readings that they phoned in that they were in fact immersed in the plume or whether or not the readings that they got were from shine, say of cloud that might have been overhead.

MULLEAVY: Just by the wind speed that we had determined that they should be there, it should be there over them.

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DONALDSON: Was there any attempt to corelate you to false by positive or 1 any results from counting of the charcoals with those particular beta-gamma 2 readings to say, in fact, yes, they were in the plume and they were pulling 31 an air sample in the plume, and the plume was not in fact overhead. 4 5 MULLEAVY: No, we didn't have that quick result to determine that right 6 away. 7 8 DONALDSON: Would it be possible then, that although they would have had 9 elevated readings, beta-gamma readings, and they did, in fact, pull an air 10 sample that they in fact were not pulling an air sample since they were not 11 immersed in the cloud, but they were, in fact, experiencing shine from a 12 cloud that may have been overhead. 13 14 MULLEAVY: It could very well have been that case, yes. 15 16 DONALDSON: Was there any attempt to, say, follow that plume path out 17 further to see if there was a touchdown point or verify, in fact, if there 18 were any iodine in the cloud. 19 20 MULLEAVY: do. 21 22 ESSIG: One of the other areas that we have discussed the previous time, we 23 talked about the apparent iodine measurements. And I say apparent because 24 it wasn't, at least for the first day, it wasn't until later on in the 25

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afternoon that it was confirmed that what you were measuring on the SAM-2 was not, in fact, iodine. So, I think as we had discussed previously you really had no choice but to assume it was iodine offsite in those initial measurements that you had made and with regard to a question that I had asked you, I had asked you about there were some offsite measurements of apparent iodine again on the order of  $10^8$  to  $10^{-7}$  microcuries per cc and you had said we did discuss it and we looked at the dose rates of those particular areas. We did see that we had some lengthy stay time in those particular areas and looking it up on the chart. I was not worried at the time, I didn't think the levels were that bad. Now when you said looking it up on the chart, what specific really were you referring to there?

<u>MULLEAVY:</u> There's a corelation chart in the plan which gives you a thyroid dose to the child in that particular environment and we did not see on that chart, I believe that Bev Good was the one that was looking at it at the time, and we did not see us reaching that limit or that level for any particular immediate period of time.

DONALDSON: Tom, I think that chart, is that not the one that is extracted from the Environmental Protection Agency as a guide to protective action?

MULLEAVY: Yes.

DONALDSON: And I think there's also a whole body chart, whole body dose rate chart and projected dose extrapulation also, is there not?

MULLEAVY: Yes.

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2 DONALDSON: Okay. Just as a quick follow on that, when you're using this 3 chart did you use it with the radioiodine noble gas ratio strictly as it 4 was printed or did you make any adjustments to that ratio? 5 6 MULLEAVY: Strictly as it was printed ... 7 8 DONALDSON: Then you didn't determine that you would go with whole body 9 action guides based on the fact that air samples or the like had shown that 10 the ratio was less than .2 as shown in the chart. You did or you didn't? 11 12 MULLEAVY: We did not. 13 14 DONALDSON: Did not. 15 16 ESSIG: There's one point that I'd like to clear up with respect to the 17 direction of the offsite teams. In your previous interview you had stated 18 that at some point later on, and that point may have been after the three 19 day period of interest that we're talking about here, the direction of the 20 teams was essentially coming from the observation center. 21 22 MULLEAVY: Yes, it was. 23 895 260 24 25

ESSIG: Again, discussing this with Mr. Dubiel, he indicated that he thought it was after the first day, that is after the 28th, late in the evening on the 28th, and I also pursued this with Sid Porter your consultant. And a number of individuals were asked the same question and it appears as if the direction of the offsite survey teams never left the ECS.

MULLEAVY: No. That's not true.

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ESSIG: According, well Mr. Porter was pretty emphatic about that because he indicated that he had spent essentially the entire, off and on essentially the first two and a half weeks or three weeks or so in and around the ECS, and when I spoke with Mr. Tsaggaris and Potts, who I think on the second or third day began to act as what they call the ECS coordinator and I think at that time you were somewhat relieved to or freed up to perform other duties assisting Dubiel and a few other things, is that correct?

MULLEAVY: That's correct, yes. I moved from the ECS over to Unit 2's control room.

ESSIG: Okay. Mr. Potts indicated when I asked him that question, he said there was one time he recalls the survey teams being directed from the observation center and he got on the radio right away and explained to them in very clear terms that they, that the directions for the survey teams were coming from the ECS and not from the observation center. Now there are several people that feel, I apparently as strongly as you do only in

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the opposite direction that the direction for the survey teams was coming 1 2 from the ECS. You feel that it was eventially turned over to the observation center. 3 4 MULLEAVY: It was turned over to the observation center, yes. 5 6 ESSIG: And again, in your opinion, do you recall about when that was? Was 7 that... 8 9 MULLEAVY: I said the third day. I could be wrong. It could have been 10 shorter than that, but I know I was relieved of duties there and then moved 11 back and taken out of the ECS. 12 13 ESSIG: But I had impression that Mr. Tsaggaris and Potts were continuing 14 to direct the ECS nuclear engineers... 15 16 MULLEAVY: The ECS was still... 17 18 ESSIG: To direct the survey effort. 19 20 MULLEAVY: Right. The ECS was still manned and is still somewhat of an ECS 21 up there now. But in the way that I know the ECS I was relieved of duties 22 and I was supposed to have been that duty officer there and that was taken 23 away. Now, then I assumed duties over in Unit 2 and left the ECS. So if 24 they continued during the time that I was there, we did very little direction 25 895 262

of the offsite teams and that direction did come from the observation 1 center. 21 3 ESSIG: Okay. Well the people that were actually there in the ECS after 4 you were relieved felt very strongly that indeed they were directing the 5 survey teams from there and in fact were, according to them. 6 7 MULLEAVY: Alright. So, I wasn't there, I can't dispute that. 8 9 ESSIG: Okay. There's one point that I was hoping maybe you might be able 10 to shed some light on in reviewing some of the survey records. These would 11 be the records maintained in the ECS, particularly early in the day on the 12 28th, these sheets right here, and I believe these were from compiled off 13 smalle: sheets which were filled out as the readings were radioed in... 14 15 MULLEAVY: Yes, there is a small sheet that... the data came in. 16 17 ESSIG: That sheet was completed and I believe Bev Good told me that she 18 more or less designed this format of compiling the data because the smaller 19 sheets was getting to the point where they were getting ... 20 21 MULLEAVY: Piled up. Yes. 22 23 ESSIG: It was too hard to see trends and that type of thing. Now there is 24 one point I wanted to ask you about here is that these actually start here 25

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on Page 2 of this log here, we'll call it, at 0842. I know from having reviewed other sources of data and other interviews that there were actually surveys on the Island probably about an hour before that, around 0750 or so, 0745 or 0750.

MULLEAVY: Yes.

ESSIG: The results of those don't appear anywhere on this ECS summary. Do you know where the...

MULLEAVY: Its probably because the ECS was r collecting data at that particular time. I think people were just out doing survey work and whether it is recorded somewhere, I don't know. I can't tell you what those recordings are.

ESSIG: They were directing the surveys....

MULLEAVY: That's right. Until somebody said hey let's start writing these down meticulously and getting the forms out of the locker, we were still in a situation where the corelation wasn't there and then we begin to get some semblance of order, that's when Bev started doing this.

ESSIG: Okay.

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MULLEAVY: Now those could have been put on little pieces of paper. Those little pieces of paper could be somewhere if indeed they were made up. I can't be sure they were.

ESSIG: I'm aware that they are on a little piece of paper and if I understood...

MULLEAVY: It could have been misplaced when we grabbed everything and ran out of the ECS, when we left the ECS and went to the Unit 2's control room.

ESSIG: Okay. There were a couple of instances where there were measureable dose rates offsite or I guess properly would call them exposure rates, on the order of 10's of mr/hr on a couple of situations in the northwest sector, north to northwest sector, and I believe the levels there, and this would be late in the day on Wednesday the 28th, were on the order of 12 or 13 mr/hr. There was a level measured at the north gate which was about, as I recall, about 27 mr/hr or so. The question is was an attempt made by the ECS, yourself, or others that were there under your direction, to, once one of these higher measurements were made, were they instructed to stay in that sector and to continue making measurements as long as the plume appeared to be going in that director, in other words, to continue...

MULLEAVY: Continue to monitor that ...?

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ESSIG: To follow the plume in order to get some kind of, to establish some kind of dose chronology, if you will, for a given sector?

MULLEAVY: They were asked to move up and down that particular area going from point to point giving a swing around there. Now passing in and out of that particular plume area they were not asked to stand in that plume giving dose chronology, no.

ESSIG: So it really wasn't known then if the, say for example, if the 9 releases at the plant had, the noble gas release rates had increased significantly.

MULLEAVY: No, they did not stay meticulously in the middle of that plume. 13 We asked them to move in and out because we were looking for their exposure 14 also, to keep it down and we were asking them to move in and out of that 15 particular area. 16

ESSIG: Okay. I have some other notes here that I had made that I wanted, 18 points I wanted to ask you about. In response to a question, I wanted to 19 ask you about the records kept by the individuals performing the surveys. 20 I believe I asked you if the individuals were keeping some kind of record, 21 if one of the team members was assigned to record the dose rates, dose rate 22 time, location, date, and that type of thing, and I think you responded 23 that the measurements are recorded on a map. 24

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MULLEAVY: Yes.

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2 ESSIG: And they also have tablets on which the data can be recorded. I'd 3 just like to clarify, do you know for a fact that either the maps or the 4 tablets were used, because none of those records have shown up yet... 5 6 MULLEAVY: I was unaware that you didn't have them. I had not seen the 7 maps. I haven't seen the books because I believe those kits are still in 8 use. They should be operating out of the observation center and if you 9 haven't seen them, I don't know why you can't. 10 11 ESSIG: Okay so these would be in books ... 12 13 MULLEAVY: Yes, their in a 3 ring note book. 14 15 ESSIG: Loose leaf note books? 16 17 MULLEAVY: Along with their procedures and so forth. And all of the envelopes 18 and collection criteria that they had gone through, particulates should be 19 in an envelope along with the time and the dose rates and so forth there. 20 It should be being kept. 21 ----ESSIG: Okay. There still should be in the kits at the Obseration Center. 23 24 895 267

MULLEAVY: Could very well be. People who are operating those kits. As a 1 matter of fact I know those kits aren't back because we're looking to get 2 new ones or more kit material to fulfill our obligation of having kits 3 onsite which we're working on right now. So that material is still out in 4 the field. As I say, I have not seen it since I left the control room. 5 6 ESSIG: I haven't seen it either and I've requested the records of the 7 surveys and all that I have seen are what I have shown you here which are 8 the sheets which were maintained in the ECS itself and in particular I'd 9 like to see some of the surveys that were made in the early morning of the 10 28th which there to be a number of gaps in the ECS log. 11 12 MULLEAVY: Before this 842 or whenever that started. 13 14 ESSIG: Okay, so I... 15 16 MULLEAVY: I'm sure that exists somewhere, it should be. 17 18 ESSIG: If one of you gentlemen would care to pick up with any questions 19 you might have now, I'll come back to a couple of these later. 20 21 DONALDSON: I'd like to go back to the time in which you received the 22 results from the State of Pennsylvania on the first positive iodine sample, 23 suspected positive iodine sample in Goldsboro. I believe that the results 24 were flown back to the site. 25

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able iodine in the sample. <u>DONALDSON:</u> You're saying the first one for which it was believed there was positive. That particular sample was flown so the State of Pennsylvania could provide a count of the cartridge for you. The results were available

sometime around 2 in the afternoon on the 28th. Do you recall ever having received the results of that sample?

<u>MULLEAVY:</u> I don't specifically remember when that came in. I do recall, I recall the first one that came back and that there was not iodine detectable in it and we were all relieved.

DONALDSON: And that was the one that came from the State.

MULLEAVY: Yes.

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DONALDSON: Okay. At that time, now when you knew that, you had a sample, I think we can safely say that the sample was pulled in the plume since you did have some material on the cartridge which, in this case, proved to be Xenon therefore, we can say you were in the plume. Since there was no iodine on the cartridge, that I believe, you can correct me if I'm wrong, you could have made a determination that the components of the release were limited to Xenon.

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MULLEAVY: I think the first one that I had heard that there was no detect-

MULLEAVY: That particular sample, yes.

<u>DONALDSON:</u> Alright. For that particular sample. Now based on, there were other, I believe on the first day, the 28th, approximately 8 air samples which indicated some form of positive, okay. Now as near as I can tell, none of these subsequent samples were in turn analyzed to determine what actually was on the cartridge, is that correct?

MULLEAVY: I can't say whether they were or not ...

DONALDSON: Do you recall ever having been privy to any subsequent analyses of the cartridges where you could ah we still don't have any iodine?

MULLEAVY: No.

DONALDSON: Okay. Then based on that single sample, would you say that it was that sample analyzed by the State that caused you to conclude that the components of the release were, in fact, Xenons and that whole body protective actions guides would apply as opposed to the thyroid guides?

MULLEAVY: No, I don't think that we made that evaluation on that one. I do recall being relieved that we didn't see any iodine, but it was not conclusive at that time. I think we still went along with the iodine.

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1	DONALDSON: Okay, and based on that, were you making continual dose assess-
2	ments using the charts.
3 4 5	MULLEAVY: Yes.
6 7 8	DONALDSON: Was anyone maintaining a, what would be a, running list of dose commitment in particular areas offsite where particular readings were taken?
9 10 11	MULLEAVY: A running list of them? No, I don't believe so. The corelation of the extended times and exposures of individuals there?
12 13 14	DONALDSON: Yes.
15	MULLEAVY: No, I don't. We weren't at the ECS.
17 18 19	DONALDSON: When these projections were made, do you know what duration of release the individuals were applying to those charts to determine what the dose commitment would have been?
20 21 22 23 24	MULLEAVY: We were using the actual times where we saw that the winds shifted and changed quite often. It was very very erratic, we weren't getting that much time in any area. 895 271
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DONALDSON: So then for a given point you might apply an hour one time ... MULLEAVY: An hour at the most. DONALDSON: And the next time if it appeared there again you might apply another hour. So that for any given sector on your map, that is the sixteen wind-rose sectors, there was no attempt to keep a compilation of those commitment as the event progress. MULLEAVY: That's correct. We did not. DONALDSON: When did you switch over from using the iodine charts and begin using the whole body guides? MULLEAVY: We didn't at the ECS while I was there. We used the other guidelines, the iodines. DONALDSON: Did you continue to assess? MULLEAVY: Yes, we did. DONALDSON: And the most restrictive, of course, would have been, what, the iodine would have been the most restrictive. 895 272 

MULLEAVY: Yes.

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DONALDSON: For that particular thing.

MULLEAVY: Yes.

DONALDSON: Now knowing what you know now the ratio that in fact did exist in that release put you to a point where I believe you should have used the whole body guide, is that correct?

MULLEAVY: Um um.

13 <u>DONALDSON:</u> Okay. So am I correct in assuming that even though you had 14 empirical data that there was no iodine in the release, you continued to 15 monitor to make sure that the components of the release did not change but 16 you did not also begin to compute dose commitments on the whole body basis. 17 You stayed with the thyroid.

19 MULLEAVY: I stayed with the thyroid.

21 DONALDSON: Okay. One of my many tasks here that I'm trying to do is 22 trying to piece together the organization, the emergency organization that 23 mustered on the morning of the 28th and, because this was a fairly prolonged 24 situation, I'm trying to determine initially what organization existed and 25 then what kind of changes may have come about and what the characterist or

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configuration might have been at various points. And, again, from various 1 other interviews I put together something that looks like the way the 2 organization developed on the morning of the 28th and the way it appeared 3 to be through most of the day on the 28th and I'd just like to ask a few 4 questions in relation to this to see if your memory is in line with this. 5 Okay, the first thing I'd like to do is go back to the morning and the 6 formation of the ECS. I believe in your earlier testimony you had mentioned 7 that you felt that a repair party team had formed in the ECS, and you 8 recall having seen that team. 9 10 MULLEAVY: Um um. 11 12 DONALDSON: Subsequently, do you recall that team having been called from 13 the ECS and told to report to another location or did that team remain? 14 15 MULLEAVY: We took the team with us when we left. 16 17 DONALDSON: You took the team with you. 18 19 MULLEAVY: All individuals left with me. And that means we left the ECS at 201 the Unit 1 HP control point. Now, I left behind outside the doorway to the 21 ECS a foreman and I believe a couple of techs, HP techs. All the other 22 group left and went to the Unit 2's HP, or Unit 2's control room. 23 24 25

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DONALDSON: Okay. Now, under the normal organization, the sheet that 1 appears in the procedures and the way things are set up, according to the 2 wiring diagram of the organization, under whom does the repair party operate? 3 4 MULLEAVY: It operates under the Director of the ECS. 5 6 DONALDSON: Who in this case would it have been? Yourself, right? 7 8 MULLEAVY: Yes. 9 10 DONALDSON: Now the next individual, the next command type individual down 11 the chain, who would be involved in repair party functions would be who? 12 In other words who would you normally interact with? 13 14 MULLEAVY: The head of the of repair party which is usually a mechanical 15 maintenance person, a foreman, or a supervisor. 16 17 DONALDSON: Okay, now correct me if I'm wrong. The normal head of the 18 overall repair party team is normally the supervisor or the superintendent 19 of maintenance, is that correct? 20 21 MULLEAVY: Who is Dan Shovlin. 22 23 DONALDSON: I believe the plan calls the supervisor of maintenance and now 24 you have, you know, Unit 1 supervisor and Unit 2 and now he's the superin-25 tendent. 895 275

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3	DONALDSON: Now normally in past drills, had you interacted with Mr. Shovlin?
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5	MULLEAVY: Yes. He usually reported directly there.
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7	DONALDSON: Let's wait for that car to back out.
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9	FOSTER: Could you repeat that last statement, please?
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11	MULLEAVY: You want me to
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13	FOSTER: Repeat the prior statement.
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15	MULLEAVY: I believe the question was that did I interact with the supervisor
16	of maintenance? Yes. And that was usually Dan Shovlin.
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18	DONALDSON: Now the morning of the 28th, do you recall Mr. Shovlin being in
19	ECS?
20	MULLEAVY: I think he was. I really think he was.
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23	DONALDSON: He wasn't.
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1	MULLEAVY: He wasn't?
2	DONALDSON: He says he wasn't.
4 5	MULLEAVY: I don't know.
6 7	DONALDSON: I didn't know whether you had seen him or not.
8	MULLEAVY: I thought he was.
10	DONALDSON: Okay, he says he wasn't. But normally you would expect to see him there, is that right?
12 13	MULLEAVY: I would normally expect to see Dan there, yes. There was a
14	supervisor there or a foreman. I think it was a supervisor.
16	DONALDSON: Okay. Now we have indications there were, there was a maintenance foreman, a Wilson.
18	MULLEAVY: There was one individual we did communicate with and he was
20	supposed to set the team up.
22 23	DONALDSON: Okay. So, it was unusual that Mr. Shovlin was not there working
24 25	closely with you or that you, you would normally, the thing that had to be done contact Mr. Shovlin or have discussions with him? 895 277

MULLEAVY: He was usually there to head off that particular team and direct them.

<u>DONALDSON:</u> In the drills and through the normal procedures, if there were a request from the emergency control center for a repair action to be accomplished or corrective action such as turning of a valve, something of that nature, would that request normally come to you directly from the ECC?

MULLEAVY: Yes.

DONALDSON: You in turn then would pass that request to Mr. Shovlin, correct?

MULLEAVY: That's true.

DONALDSON: Alright. And what else would you do at that time? What is the procedure designed to do? What else would you possibly attempt...

<u>MULLEAVY:</u> I would have an HP man, tell him who his HP man is, they should already have known that, and discuss what clothing was needed and send them on their way. Tell them what they'd be up against and that's what the HP man is for, and give the direction that was given to me, tell them why if I knew why they had to go do this and what their situation was.

DONALDSON: Okay. Then, I guess I'm correct in assuring that you essentially do, by virtue of your position on the organizational chart, essentially direct the operations of the repair party teams.

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1	MULLEAVY: That's correct.
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3	DONALDSON: Now, let's go back to the morning, let's continue on the morning
4	of the 28th. During the time that you were located in the ECS were any
5	repair party functions conducted?
6	
7	MULLEAVY: No.
8	
9	DONALDSON: No requests came to you at all?
10	방법 전 전 것은 것 이 가지 않는 것 같은 것 같
11	MULLEAVY: No.
12	
13	DONALDSON: Now let's relocate you and move you up to the Unit 2 control
14	room, which is the alternate ECS, you said the repair party you took them
15	with you?
16	MULLEAVY: Yes, yes. Everybody evacuated the normal ECS.
18	DONALDSON: Now, do you recall Mr. Shovlin in the Unit 2 control room?
19	I've already given you the answer, I guess. Do you recall seeing him?
20	
21	MULLEAVY: I thought I saw Dan somewhere but I'm not sure now.
22	to bought i sun sun somennere but i in not sure now.
23	
24	DONALDSON: Did Mr. Shovlin touch base with you at any time during the
25	morning of the 28th either to inform you that there were repair functions

1 or corrective actions being initiated either at his direction or at the direction of anyone else? 2 3 MULLEAVY: I don't recall that interface, no. Specifically with Dan, no. 4 51 DONALDSON: Then at any time during the 28th, do you recall ever having 6 this normal procedure of a request for a repair or corrective action function 7 coming to you and you in turn contacting the repair party team, passing on 8 the request, briefing them on the radiological conditions, and assigning a 9 repair party monitor? 10 11 MULLEAVY: Not as we had done in drills, no. 12 13 DONALDSON: Were you aware or had you, did you, were you able to observe 14 that any repair functions did take place? Did you see any of his indi-15 viduals huddling or dressed in protective clothing or gathering meters as 16 if they were preparing to perform some kind of activity? 17 18 MULLEAVY: I don't recall that particular function happening. I, gosh, I 19 do remember getting auxilary operators out to do specific things. 20 21 DONALDSON: Okay, you say auxiliary operators, what ... 22 23 MULLEAVY: Auxiliary operators acting in the HP capacity, going out to 24 different doors, getting surveys, going up on the roof ... 25

27

1	DONALDSON: This would be auxiliary operator A's? You were using them as
2	MULLEAVY: Yes. We were using them as HP people.
3	<u>insection in the were using them as in people.</u>
5	DONALDSON: As a monitoring team individuals?
6 7	MULLEAVY: That's correct.
8	DONALDSON: Correct, okay.
10	MULLEAVY: A specific duty for a repair party, I cannot recall.
12 13 14	DONALDSON: Okay. Then what I'm hearing you say is that essentially the repair party came the way it had been drilled and the way plan had it
15 16	organized, but essentially did not coordinate with you in the manner in which you'd been used to.
17	MULLEAVY: I think that's correct.
19	DONALDSON: Okay. Let's move from the repair party team to the various
21	monitoring teams. I believe in your early testimony you stated that you were primarily involved with the survey teams and in specifically the
22	offsite monitoring.
24	. 895 281
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MULLEAVT.	That's correct. Offsite and onsite.
	Alright. And onsite meaning outside of the confines of the
facility,	not inside the plant?
MULLEAVY:	That's correct.
DONALDSON:	And I believe you said that you and Dick Dubiel pretty much
split up t	he work. He took the inplant health physics aspects and you to
the offsit	e and onsite survey teams.
MULLEAVY:	Well, yes. We're talking about the onsite or inside the build
yes, he di	d take care of that.
DONALDSON:	Now normally we would expect that the supervisor of Radiation
Protection	or as the term is evolved in the last couple of months, the EC
director,	would be in charge of, well what, the onsite monitoring teams,
that corre	ct?
MULLEAVY:	Yes.
DONALDSCN:	The offsite monitoring teams?
MULLEAVY:	Um um.
	205 202
	895 282

- 1	DONALDSON: The assembly area munitors?
2 3	MULLEAVY: That's correct.
4	DONALDSON: The washdown area monitors?
6 7	MULLEAVY: Um um.
8 9	DONALDSON: The gate monitors?
10 11	MULLEAVY: Yes.
12 13	DONALDSON: The chemistry personnel?
14 15	MULLEAVY: Yes.
16 17	DONALDSON: And, let's see. I believe, and the repair party team?
18 19	MULLEAVY: Right.
20 21 22 23 24	DONALDSON: And I think that comprises most of the people. Now, again, what I'm hearing you say is that the evolution of events were such that you were limited to onsite survey teams and offsite survey teams. Did you maintain control of the assembly area monitors?
25	895 283

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1	MULLEAVY: Yes.
2	
3	DONALDSON: You did?
4	
5	MULLEAVY: Um um.
6	
7	DONALDSON: Okay. Was there a monitor at the north auditorium?
8	
9	MULLEAVY: Yes.
10	
11	DONALDSON: You believe there was. And the warehouse area?
12	
13	MULLEAVY: Yes. The warehouse area was taken care of by the onsite survey
14	team.
15	
16	DONALDSON: Onsite survey team?
17	
18	MULLEAVY: Yes.
19	
20	DONALDSON: Okay. And of course, in the turbine building?
21	
22	MULLEAVY: The turbine hall was taken care of by an auxiliary operator.
23	
24	DONALDSON: Alright. Now gate monitors. Were both gates functional on
25	that morning? In other words South Gate and North Gate?

1	MULLEAVY: Yes, they were.
2	
3	DONALDSON: Did you, in fact, dispatch or verify that you had a gate monitor
4	at each?
5	
6	MULLEAVY: Not until we actually felt it was necessary to have one.
7	
8	DONALDSON: Then you in fact did dispatch monitors?
9	
10	MULLEAVY: Um um.
11	DONAL DEON And the second second second second
12	DONALDSON: And they were in contact with the ECS?
13	MULLEAVY: Yes, they were in contact with us.
14	incleart. Tes, they were in contact with us.
15	DONALDSON: Now, later, of course, after we had evacuation of the Island,
16	washdown area monitors who I essentially if I'm correct in reading the
17	procedures, essentially not only monitor for contamination of vehicles, but
18	also monitor for contamination on personnel, is that correct.
19	
20	MULLEAVY: Personnel in the event we have to evacuate, yes.
22	
23	DONALDSON: And these individuals also have the rest insibility for supervising
24	or conducting decontamination of the individua' and followup if necessary,
25	is that correct?
	895 285

1	MULLEAVY: That's correct.
2	
3	DONALDSON: Now the washdown area monitors that were set up and eventally
4	dispatched to the 500 KV substation. Did you assign those individuals?
5	
6	MULLEAVY: Yes, we did.
7	
8	DONALDSON: Do you recall who you assigned?
9	
10	MULLEAVY: I do not recall by name, no.
11	
12	DONALDSON: Do you recall if maybe it happened to be Mr. Velez? Do you
13	know? A Mr. McCann? Did you put a foreman in charge?
14	
15	MULLEAVY: No, it was not Mr. McCann I know because Mr. McCann was back at
16	the HP control point in Unit 1 and he stayed there. The, no, I believe it
17	was auxiliary operators.
18	
19	DONALDSON: Okay. Now would it be a normal thing for the washdown area
20	monitors to maintain communication with you and inform you of survey results
21	and the ongoing situation in terms of decontamination?
22	
23	MULLEAVY: Yes. 895 286
24	010 200
25	

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1	DONALDSON: Contamination, so on and so forth? And would you, or normally,
2	in drills or in the organization, do you provide the guidance and direction
3	for release of individuals?
4	
5	MULLEAVY: Yes.
6	
7	DONALDSON: Okay. Now I believe your procedures specify the release limit
8	for contamination of persons or equipment, do you recall what that level
9	is?
10	
11	MULLEAVY: Greater than 1000, we retain them, if it's greater than 0.4 we
12	must keep them here.
13	
14	DONALDSON: Okay5 I believe is in the current procedures.
15	
16	MULLEAVY: Alright, that's the DOT regulations.
17	
18	DONALDSON: Now, for these washdown area monitors who are part of the
19	emergency organization, what procedures are they instructed in their training
20	to follow for decontamination or following individuals in the event they
21	have positive readings? Do they use the normal procedures for handling
22	contaminated individuals?
23	
24	MULLEAVY: In their particular classroom studies we talk about that. In a
25	requal position for auxiliary operators, we do cover that
-	

DONALDSON: So you would expect that these individuals would be following the normal procedure. I don't recall the number offhand. Anyway, to the extend where it would say that nose swipes would be taken and that whole body counts and so on and so forth? MULLEAVY: Yes. DONALDSON: And then you would expect that you would be receiving reports, opinions... MULLEAVY: Any reports that they had that were abnormal they should have given to us. DONALDSON: Do you recall any time o nthe 28th through the 30th when you were acting as the ECS director, having received any such reports? MULLEAVY: I did not. DONALDSON: Did you ever initiate any action to find out why these people were not reporting to you? MULLEAVY: Well, the gate monitors didn't have any problems going out the north gate, so I didn't anticipate any problems out at the other areas. 895 288 

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1	DONALDSON: The other area was kept in operation, I believe, quite a period
2	of time.
3	
4	MULLEAVY: Yes, it was.
5	
6	DONALDSON: Did you periodically check with these individuals either when
7	you went over to grab a sandwich or
8	
9	MULLEAVY: We were in communication with them, yes.
10	
11	DONALDSON: And did they experience any problems or difficulties?
12	
13	MULLEAVY: Not that they told me of no.
14	
15	DONALDSON: Did you happen to go over and at least supervise and see who
16	was doing the function to find out if they were in fact part of the emergency
17	organization that you would expect to see over there?
18	
19	MULLEAVY: No, I did not.
20	
21	DONALDSON: So, again, what I'm hearing you say is that the communication
22	from the washdown area, which in this case was set up to be the substation,
23	appeared to be spotty or infrequent.
24	895 289
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MULLEAVY: Yes.

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DONALDSON: Alright. Now again we have I believe that under the ECS supervisor that normally any chemistry functions that were to be performed also would fall under the command and control of the ECS supervisor...

MULLEAVY: Yes, the way in drills, it would be that it would be disseminated down from the ECC to the ECS via Dick Dubiel to me to have a certain sample taken and so forth and on.

11 FOSTER: Let's take a break and change the tape. Time is 5:45 p.m.

13 FOSTER: We're continuing with the interview of Mr. Mulleavy. The time is still 5:45 p.m.

16 <u>DONALDSON:</u> Okay, Tom, we're talking about chemistry functions now under the organization and the little block on the chart shows chemistry to be the chemistry supervisor. Is there a chemistry supervisor presently?

MULLEAVY: No.

DONALDSON: Is that not a ...

MULLEAVY: Not such a title, no.

895 290

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1	DONALDSON: Is that not a requirement that you have a chemistry supervisor?
2	MULLEAVY: A requirement? Its on the chart
4	
5	DONALDSON: Its part of your technical specifications that you're required
6	to have a supervisor of chemistry.
7	MULLEAVY: Yes, I believe it is.
9	
10	DONALDSON: How long has this position been vacant?
11	
12	MULLEAVY: As long as I have been here. I don't believe we've ever had a
13	chemical supervisor as such.
14	
15	DONALDSON: So the chemistry foreman did in fact on the period of the 28th
16	through the 30th, act in this general capacity, is that correct?
17 18	MULLEAVY: That's correct, and he has always during the drills.
19	DONALDSON: Okay. Now during the drills did they in fact work the way you
21	just described that, is the ECC would request that a certain sample be
22	taken, and then you would in fact brief the team and they would take the
23	sample and return the results to you.
24	005 001
25	895 291

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1	MULLEAVY: No.
2	
3	DONALDSON: Not that way.
4	MULLEAVY: It did not work that way.
6 7	DONALDSON: Why didn't it work that way?
8	MULLEAVY: Why, I can't tell you. All I can say is it did not. We're
10 11	talking about the securing of a primary coolant sample. I was unaware of that.
12 13 14	DONALDSON: Your answer to that question is in the context of the emer- gency, correct?
15 16	MULLEAVY: Yes.
17 18	DONALDSON: Okay. But normally did it work that way?
19 20	MULLEAVY: Normally, yes. During drills and so forth, yes it did.
21 22 23	DONALDSON: Were there other chemists, I know there were a number of primary samples and there were a number of attempts to pull makeup tank samples and
24 25	HPR219 samples. Were any of these coordinated through yourself?

MULLEAVY: Specifically directed through me, no.

DONALDSON: Now from going back to your discussions I would assume that 3 part of the reason these didn't come through you is because of some time on 4 the morning of the 28th between yourself and Dick Dubiel you decided that you'd take over some functions and he would take charge of some, is that 6 correct?

MULLEAVY: Well, it was the mere fact that we all moved together into one 9 big room which was the Unit 2's control room and we were functioning out of 10 Unit 1 to begin with which is a little hard to service going over to Unit 2 11 and perhaps individuals up there were asked to change certain monitors from 12 that side and it could have been done. I'm not saying all of them were, we 13 were asked to take different air samples and so forth outside and change 14 specific monitors, I don't recall which exact ones they were, but not all 15 of them, no, were directed through us as we normally would have seen on the 16 preparation drills that we had before. 17

DONALDSON: You saying some were directed through you?

MULLEAVY: Yes.

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DONALDSON: But not all?

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MULLEAVY: NJ.

DONALDSON: Who were the other ones directed through?

MULLEAVY: It may have been done directly by Dick or through the operations of the Unit 2 control room.

DONALDSON: So we would have had the normal configuration where all requests would come through you and but in fact we had the situation where some went through Dick and some may have come direct from operations.

MULLEAVY: Yes.

DONALDSON: Alright. Now again looking at this I would think that the little block, supervisor of Radiation Protection and Chemistry is filled by Mr. Dubiel that when you divided up the areas to be covered that the chemistry functions would have gone with him primarily ... 

MULLEAVY: Yes.

DONALDSON: That all the functions for inplant radiation surveys and coverage for various entries into the plant, repair party team monitors, would have fallen under Mr Dubiel, is that correct?

<u>MULLEAVY:</u> The original repair party, when we set it up at the ECS, I did assign a monitor there. When we moved back up to the Unit 2 control room, I did lose track of that particular group and spent the time on the offsite and onsite teams because I then moved from the Unit 2 control room sometime during that day, I don't recall the actual time of leaving the Unit 2's control room and going over to Unit 1 to continue the offsite and onsite teams.

9 <u>DONALDSON:</u> Since you began to operate under an organization that was 10 significantly different from that which had been normally set out, people 11 trained against and what you drilled against, did you discuss the need to 12 assign any of your Radiation Protection foremen to be in charge of any of 13 these particular functional areas that maybe Mr. Dubiel had taken or that 14 yourself had taken to ensure that continuity of command and control of the 15 operations existed?

MULLEAVY: Not specifically did we talk about that aspect, no.

DONALDSON: Then looking at the way I've managed to chart out what did occur, I'll let you take a look at this and its really a reiteration of what we've talked about. I'd like to have your general comments on whether or not this appears to be your understanding of the organization say approximately by 9:00 in the morning until whenever, if you can give me a time when this organization began to change again.

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MULLEAVY: At what time is this? What time are we talking about?	
DONALDSON: This would be approximately by 9:00, 8:30, 9:00 in the morning	
til I don't know when. But it seems when things got in full swing that	
that's sort of the way things fell out. Now, were there any situations you	
can describe that would make that different?	
MULLEAVY: No, I'm just questioning the washdown area monitors. Now these	
people may have migrated out there but specifically sent, I'm not sure.	
DONALDSON: Okay, yeah. Let me say at some time during the day the washdown	
monitors reported out there. I don't mean to imply that they were there at	
9 in the morning. Essentially when the organization was fully activiated	
and the need for the washdown monitors arose they essentially fell under	
your control. The dotted line, of course, there means that there was sort	
of spotty communication control.	
MULLEAVY: Now I can't be sure when these actually did change.	
DONALDSON: Does that appear to be the normal, well, I wouldn't say normal,	
does that appear to be the configuration that the organization took?	
MULLEAVY: Yeah.	
895 296	

DONALDSON: The direction that it went.

MULLEAVY: Yes.

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<u>DONALDSON:</u> Now this dotted box indicates that that was not a function that was specifically called out in the previous emergency plan or procedures but sort of evolved, is that...

MULLEAVY: No, the inplant radiation monitors, that is a new, kind of a new term because the inplant radiation monitors would be actually by the repair party who has a monitor with them when they go back inside the plant.

DONALDSON: Now there were also inplant surveys being conducted, I believe.

15 MULLEAVY: That was prior to actually mustering at the ECS, I understand.

17 <u>DONALDSON:</u> I believe some of this continued, for example monitoring of the 18 personnel hatch in other words there was some form of monitoring continued 19 in the facility.

21 <u>MULLEAVY:</u> After we evacuated that particular, now this was the next day. Yes, there was some in Unit 1 that continued on, yes, indeed.

DONALDSON: And they were under Mr. Dubiel, essentially?

895 297

1	MULLEAVY: That's correct.
2	
3	DONALDSON: And that was again to distinguish the sort of a group that had
4	been formed
5	
6	MULLEAVY: That was in addition to, don't forget we had never been in a two
7	day drill. We were on our second day.
8	
9	DONALDSON: Normally your inplant radiation monitors who performed the
10	initial surveys in the plant come from the so called onsite survey teams,
11	is that correct?
12	
13	MULLEAVY: The onsite survey team could migrate into the building, coming
14	in different doors, also your repair party would be the ones to go in and
15	get somebody out and they have a monitor assigned to them.
16	
17	DONALDSON: Okay, then in general this organization
18	
19	MULLEAVY: But this extra group, such as the inplant radiation monitors,
20	during a drill you don't do that type of thing, but later on you do.
21	
22	DONALDSON: So then by need you had to form that group?
23	
24	MULLEAVY: Yes. Because there was a need for people to go back in and take
25	a look.

DONALDSON: Okay. Now I believe that you do have a job board down in the ECS... MULLEAVY: Yes. DONALDSON: And you had said in your earlier testimony that the job board was filled out, or you thought that the board was filled out. MULLEAVY: We asked to have it done and I believe it was. I don't think its still written on there. I think it was either erased or something. But it was. We tried to get that going. DONALDSON: Someone took the time to erase it shortly after, do you think? MULLEAVY: I don't know if it was erased shorty after. I don't know, we left that area. DONALDSON: Did you have a job board up in the alternate center so that you could make sure that the proper organizations were being formed and that ... MULLEAVY: There is one up there, yes. Whether we used it or not, I'm not sure whether we transmitted that data there. DONALDSON: Where is that job board located? 895 299

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1	MULLEAVY: That's located inside the shift supervisor's office.
2	
3	DONALDSON: Okay. Now I believe that the shift supervisor's office is the
4	specified designation, specified location for the alternate ECS.
5	
6	MULLEAVY: That's correct.
7	
8	DONALDSON: Now you in fact located not in the shift supervisor's office.
9	Can you tell me why you didn't locate there?
10	
11	MULLEAVY: Because it was too crowded. There were an awful lot of people
12	up there. You asked me how many in the last testimony and I don't remember
13	what I said.
14	
15	DONALDSON: And you didn't contact Miller or Dubiel or throw everybody out
15	of there and
17	
18	MULLEAVY: No, they were all there and we did mention the fact that it was
19	very crowded up here but it was rather confusing too.
20	
21	DONALDSON: How important is this job board when you fill these things in?
22	Does it help you determine that all the functions are being covered and to
23	know what's going on in the various areas?
24	895 300
25	075 500

MULLEAVY: No, I suppose it is very meticulously to write it down, that 1 would have been very handy I suppose. But in the confusion and where it 2 was located it was not practical to do it. 3 4 DONALDSON: What I'm hearing come out of this is that when we ran the 5 drills and when we trained we're all going to do our little thing here 6 that's assigned by the plan that when the real emergency came because it 7 was an emergency we did what we felt we had to rather than ... 8 9 MULLEAVY: We did what we had to do, not what we felt had to be done. It 10 just evolved. I'm sure that any plan that is written that's put into full 11 effect, such as ours was, you would find the same thing happen. I'm sure 12 the NRC found in their plans they had to alter those plans. 13 14 DONALDSON: Do you feel that in starting to implement the organization that 15 you gave the organization time to fully develop before you made the decision 16 to go away from it? In other words did you say ... 17 18 MULLEAVY: I don't think there was a decision made to go away from the 191 organization. It was something that happened and seemed to be a good way 20 to do it. 21 22 DONALDSON: Did anyone say let's try to follow our plan and lets organize 23 this way and ... 24

25

895 301

MULLEAVY: We started out that way. We started forming our teams. When we found that we needed more teams than we had developed in the plan, such as sending auxiliary operators to the roof areas, sending them down here south...

DONALDSON: Now, I believe that's only one team we're talking about. But again what I'm talking about here is...

MULLEAVY: I'm talking about different individuals we sent different places.

DONALDSON: By your plan aux operator A's and rad chem technicians can be survey people, so I have no problem with that. What I'm saying is that, and I think the fact that you formed this group out of necessity, this inplant radiation group, but as far as configuring the organization where Mr. Dubiel then assumed control over these three functions, okay, and the fact that the repair party did not in fact assemble under Mr. Shovlin in the ECS but in fact did assemble in the Unit 2 control room. Was there any discussion or did anyone say hey, you know, let's look at the organization. Are we implemented properly, are we talking to the right people? 

MULLEAVY: No.

DONALDSON: Or did things just really allowed to take their natural course?

895 302

MULLEAVY: They, I believe were allowed to take their course until finally 1 somebody brought their bootstraps back together again ... 2 3 DONALDSON: And what happened at that time? 4 5 MULLEAVY: I think that's when we split and we went to the Unit 1 control 6 room and began only that monitoring offsite and the onsite team which 7 seemed to be a good idea to be a specific entity. 8 9 DONALDSON: May. Then this became even clearer when you moved locations 10 to the Unit 1 control room. 11 12 MULLEAVY: Yes. Because you could isolate yourself to that particular job 13 and pay attention to that job without the other confusion of the material. 14 15 DONALDSON: Was Gary Miller the emergency director in on any discussions to 16 realign the emergency organization in a way different than the plan had it 17 configured? 18 19 MULLEAVY: He may have been but we didn't sit down and talk about it. They 20 may have discussed that. He may have decided this with another group. We 21 were then directed to go to our separate places and conduct those functions. 22 Whether he did or not, I don't know. 23 895 303 24 25

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1	DONALDSON: How long would you say that you either attempted or did operate
2	under the defined emergency organization as it is in the plan?
3	
4	MULLEAVY: Until we moved our separate ways, I went over to Unit 1. We
5	were still following that what I knew to be the plan.
6	
7	DONALDSON: Then you moved to the Unit 1 control room when?
8	
9	MULLEAVY: I moved to the Unit 1 control room I believe sometime in the
10	afternoon on day 1, the 28th.
11	DONALDSON: On day 1.
12	
13	MULLEAVY: Right.
15	
16	DONALDSON: So then I would expect then that if there were in fact repair
17	party team functions that you would have been apprised of it, you would
18	have briefed the team, and would have controlled those entries, is that
19	correct?
20	
21	MULLEAVY: Yes.
22	DONAL DEON - And Abob 26 Abort - And Abob -
23	DONALDSON: And that if there were inplant radiation monitoring functions
24	going on that all those results would have been reported to you?
25	005 304
1	895 304

	MULLEAVY: Those results would have come through the ECS, yes.
	DONALDSON: Okay. And in terms of monitoring individuals for contamination,
	all of the other functions still would have continued to be
	MULLEAVY: That should have come through us.
	DONALDSON: Till you shifted.
	MULLEAVY: That's right.
	HOLLENYI. Mat 5 Fight.
	DONALDSON: Okay. Okay I think, let's see if I have anything else here.
	Okay. I wonder if we could just touch very briefly on the emergency plan
	training program. I believe that the, yourself and Mr. Dubiel, as his
	designate, have the responsibility for conducting various portions of the
	emergency plan training program for the organization.
	MULLEAVY: That's correct.
i,	ONALDSON. One area I'd like to touch on is in the mousin methods and
	DONALDSON: One area I'd like to touch on is in the repair party team. Did
	you conduct a portion or all of the training session for the repair party team in 1978?
1	MULLEAVY: I conducted a session to train the foremen of the maintenance
	department to conduct then that training and pass it on to their men.
	895 305

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DONALDSON	Did you r	equire any b	kind of a to	est to ensure th	nat the degree of
knowledge	that these	individuals	had acquir	ed were sufficie	ent?
MULLEAVY:	No.				
DONALDSON:	In partic	ular, in you	ur training	, did you addres	s such things as
emergency	risk doses	for repair f	functions?		
MULLEAVY:	Yes.				
DONALDSON:	_ Did you d	iscuss the a	uthorities	for exceeding a	dministrative
limits of	exposure?				
MULLEAVY: it.	Those men	are aware of	that, yes.	As they've al	l been through
DONALDSON:	And did y	ou also disc	uss the inc	lividuals who co	uld authorize
individual	s to perhap	s take expos	ures higher	• than the admin	istrative limits?
MULLEAVY:	No, I don'	t believe so	, no. I do	on't recall that	
DONALDSON:	Did you d	iscuss the c	ommand and	control of that	repair party
team, that	they were	to function	in the ECS	and that they w	ere to get HP
coverage a	ind that they	y were to go	through th	at ECS director	before they
				895 3	506

MULLEAVY: They should have been oware of that, yes, indeed. They knew where to muster, they knew how it was formed, they knew where the clothing was, they knew what the emergency exposures could be, what the hazards involved were.

6 <u>DONALDSON:</u> So at the time that training was conducted and you wrote your 7 evaluation on the administrative training form, did you feel that the 8 training had been adequate to impress upon the individuals who you were 9 training who where in turn going to train others of these important aspects 10 to control, exposure aspects, health physics consideration?

12 <u>MULLEAVY:</u> There were two individuals that I taught who took it rather seriously, yes. I think so.

15 DONALDSON: You say two. How many did you teach?

17 MULLEAVY: Three.

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19 DONALDSON: What about the third one? Did he not take it seriously?

21 <u>MULLEAVY:</u> I'm not too sure whether he did or not. I've had a couple of sessions with him.

24 <u>DONALDSON:</u> How did you evaluate the performance of these people? Did you give them tests, did you...

895 307

MULLEAVY:	We did not. We evaluated it on the questions that they asked
and whether	r they were interested in the subject matter.
	Okay. So that their proficiency or their ability to function
was determi	ined by their eagerness or their interest in the class.
MULLEAVY:	That's correct.
CONALDSON:	There was no written test or exam.
MULLEAVY:	No.
DONALDSON:	Let's talk about monitoring team training for a while. I
	it the way the training is set up presently that either, well any
	chnician or any auxiliary operator A could perform the monitoring
functions,	the various monitoring functions
MULLEAVY:	They can monitor individuals, yes.
DOMALDSON:	And you conducted that training I assume?
MULLEAVY:	Yes
	Let's talk about individuals who might be called upon to use nstrument first of all and the training that revolves around
	the training that revolves around

t	hat. Is the SAM 2 an instrument that the technicians might normally use
i	n their day to day activities?
M	ULLEAVY: No, it was not before the accident. It was not one that they
u	sed normally.
D	ONALDSON: Okay. In the training program, could your briefly describe how
t	he teams are familiarized with the operation of the SAM 2 and how their
k	nowledge of the operation is checked?
M	ULLEAVY: There is a procedure which we use for calibration of the SAM 2.
L	en Landry was instrumental in getting that procedure of the did the
С	alibration, background, and so forth, and worked with the instruments and
t	hen Len is the one that gave that particular training.
	ONALDSON: I believe you attended that craining.
M	ULLEAVY: Yes, I did.
D	ONALDSON: Okay. Did you, have you ever in fact operated a SAM 2?
M	ULLEAVY: Yes, I have.
00	DNALDSON: Here?
	895 309

MULLEAVY: Yes.

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DONALDSON: The class that you attended, did every individual who attended that class have the opportunity to have hands on training and operate it or was it a demonstration?

MULLEAVY: They had the opportunity, no, they had the opportunity to come up to the table, try it out, run it, they could have an opportunity to take an air sample because we showed them the whole business, look at it, turn it on, take a background, take an efficiency, run it, if they wanted to, and they had that ability.

DONALDSON: It was sort of a voluntary thing.

MULLEAVY: Yes.

17 DONALDSON: In other words we're gonna use the next period of time for all those who want to come and operate the SAM 2.

20 <u>MULLEAVY:</u> That' right. And generally we had in the classes that I did 21 attend and I believe I attended 5 of those that were given because I gave 22 the preliminary to it and we had pretty good response.

24 <u>DONALDSON:</u> Okay. Did you make any note or did any attempt to single out 25 or retrain any individuals who may not have desired or may not have had the 25 opportunity in the time alotted to operate the equipment?

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1	MULLEAVY: No. No.
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3	DONALDSON: You didn't keep ary kind of a list to see who would
5	MULLEAVY: Who was interested and who was not, no, I didn't.
6	
7	DONALDSON: Okay. Was there any followup evaluations to determine whether
8	or not the students had in fact grasped the operating principals of the
9	instant?
10	
11	MULLEAVY: No.
12	
13	DONALDSON: Had you ever discussed this approach with Len Landry or anyone
14	considering the importance that this instrument played in the evaluation of
15	offsite consequences?
16	
17	MULLEAVY: No, I don't believe I did.
18	DONALDSON: Had you ever had any comments from any of the rad chem techni-
19	cians or aux operators who would be assigned to these teams who felt that
20	이 있는 사람 수업 가 있다. 바람은 관련 방법을 받았는 것은 것을 가지 않는 것이 있는 것이 있는 것이 있는 것이 있다. 이 것은 것이 있는 것이 있는 것이 있는 것이 있는 것이 있는 것이 있는 것
21	they needed more time on the instrument or they didn't know how to operate
22	it or felt uncomfortable?
23	
24	MULLEAVY: They were, yes, I have heard comments from them. Some were
25	unsure that once a year going through this particular training that they
	895 311

would feel	free to look at it. They were invited any time, at any free
time that	they had to go in and take a look at them.
DONAL DOON.	
DUNALDSUN:	They were not scheduled for
MULLEAVY:	They were not scheduled specifically, no.
DOMAL D.CO.	
	The training program was not corrected to provide a more reenfor-
cing train	ing?
MULLEAVY:	More frequent? No. Just on an annual basis.
DONALDSON:	Now you know that the, I guess, the training procedures states
that ident	ification of weak areas in the training and correction of those
weak areas	are the responsibility of the person who conducts the training.
Did you pro	opose any changes to the training program or did you propose that
additional	time be allotted to insure that these individuals and every
individual	who is on these teams could in fact operate the equipment effec-
tively?	
MULLEAVY:	No.
DONALDSON:	Alright. Now in terms of those individuals, and again it would
be the rad	chem techs, I believe, and the aux operator A's who might function
	ndown areas, did this training also include discussion of decon-
	895 312

tamination methodology in the procedures to be followed in the event of an emergency in which an individual was contaminated? MULLEAVY: As far as iodine contamination or this... DONALDSON: Any kind of contamination. MULLEAVY: We have talked of decontamination of individuals. They do decontaminate individuals in a normal aspect of their every day work. DONALDSON: Did you discuss in the training program ... MULLEAVY: Specifically with that aspect, no. DONALDSON: Okay. Did you discuss it in a context of how this decontamina-tion would be accomplished at the washdown areas? Now the washdown areas have been established for some period of time. MULLEAVY: We spoke of it but we have never done a full scale run through. DONALDSON: Now you say you spoke of it. I assume... MULLEAVY: In their training sessions, we have spoke of, we would maintain the washdown areas. This is what we would do but we never went through and did it. 895 313

1 DONALDSON: Have you at any time in the past said to yourself or formed any 2 evaluation of the adequacy of these washdown areas and whether or not your decontamination procedures could be implemented at those locations? 3 4 MULLEAVY: We had talked about the adequacy of that particular area but 5 felt that, I think as anyone we'd never have to use it. Very seriously. 6 7 DONALDSON: So, in fact, it was discussed... 8 9 MULLEAVY: What we had was good enough, we felt. 10 11 DONALDSON: Even though these areas had been designated in their work 12 procedures with specific equipment and specific types of samples to be 13 taken in the area of the, the decision was made that there would be no need 14 to equip these areas or set aside equipment that could be taken to these 15 areas to allow these procedures to be implemented. 16 17 MULLEAVY: I don't believe that we made a decision to not make this an 18 adequate area. We felt that what we had was adequate. 19 201 DONALDSON: You felt in fact then that you could take no swipes, excreta 21 samples? 22 23 MULLEAVY: We thought that if we had to we could get that material there 24 rather than have everything. We do have it inside the plant and we could 25 transport that out there if we had to.

895 314

62 DONALDSON: With whom were these discussions held? 1 2 MULLEAVY: Probably in the department. I don't know whether they were 31 specifically documented as authorized things. We have talked about it in 4 the department many times. 5 6 DONALDSON: In discussing the adequacy of these decontamination facilities 7 offsite, was a recommendation ever made. Let's drill it and see if it 8 works? 9 10 MULLEAVY: No. 11 12 DONALDSON: Was there in your mind any question as to whether or not the 13 facilities you had were adequate if in fact you did have to use them? 14 15 MULLEAVY: I felt we could make them adequate if we had to use them. We 16 certainly have enough help outside to do that. 17 18 CONALDSON: And I would guess that by adequate you mean that ... 19 20 MULLEAVY: Capability of taking care of an individual should he have become 21 contaminated and we had to wash him out there. 22 23 DONALDSON: Now you say wash him. What about sampling materials, materials 24 for taking the dose ... 25 895 315

MULLEAVY	: Oh yeah. I'm sure we could have done that.	
DONALDSO	N: Or you felt that by adequate that means that in order for it to	
be adequ	ate you would be able to rapidly provide an area	
MULLEAVY	: Provide the material, yes	
DONALDSO	N: To allow those procedures to be followed.	
MULLEAVY	: Oh sure.	
DONALDSO	N: So you would see no reason why	
MULLEAVY	: Why should I keep it in a kit? I had it in the plant.	
	N: Then you would see no reason why at any washdown area that were why these procedures could not be followed.	
MULLEAVY	: I think they could. I think they were.	
	N: Okay. Let's see Okay, I think that generally ends my ing in that area. I'll let Tom finish up his two or three finals.	
	In looking at the transcript of our previous interview with you, re's one area which apparently we didn't get down terribly clearly.	

And it concerns a question that Mr. Donaldson had asked you regarding your 1 background and the point that does appear on here, you indicated by stating 2 that you began in the early 1960's on the NS Savanna project and so on and 31 proceeded to relate your work experience and we didn't get if you had any 4 formal college education or if you do you didn't say so. 5 6 MULLEAVY: Right. No, I don't have it in the health physics field. I do 7 not have a degree. 3 9 ESSIG: Okay. Do you have a degree in another related field? 10 11 MULLEAVY: No. No, I don't. 12 13 ESSIG: The ECS log, survey log, that we were referring to a few minutes 14 ago, the one I showed to you. The times that are required on there are 15 they times that the result was actually radioed in to the ECS? 16 17 MULLEAVY: Yes. That would have been the time taken from the ... 18 19 ESSIG: As opposed to a time that the measurement was actually made? 20 21 MULLEAVY: Well, I would hope they'd be the same. I don't know that as a 22 fact. No, but that would be the time that they phoned us and said air 23 sample at such and such a time. 24 895 317

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1	ESSIG: Okay. Or,
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3	MULLEAVY: And that's how its radioed in.
4	
5	ESSIG: The dose rate at such and such a time.
6	
7	MULLEAVY: Yes. Right. Now that would be taken from the radio from the
8	incoming call, that would not be his receipt time of that data.
9	
10	ESSIG: Wait a minute. I thought that's what you just said
11	
12	MULLEAVY: No, not the receipt time of the data, the time we received it at
13	the ECS. The time mentioned there would be the time that the technician
14	would say air sample taken at 8:02. I could have received it at 9:00. I
15	wouldn't log that time that I received it. I would be logging
16	
17	ESSIG: Okay. I understand. The reasons for asking questions that there
18	were a couple of measurements where in order to be able to ascertain which
19	came first there was a couple of measurements over which there was confusion,
20	I think it would help knowing what that time actually was. Okay. The next
21	area I'd like to ask you about very quickly is the air samples which are
22	recorded in that log. These would be SAM 2 counts of the charcoal filters.
23	MULLEAVY: Yes. On the first day, the 28th, there appeared to be about 22
25	air samples that are recorded as having been measured on the SAM, collected
	895 318

and then measured on the SAM 2. On the 29th or 30th, there are only 2 each 1 day recorded. Now, I know from other records that are, that were maintained 2 that there were other samples, in fact, collected. 3 4 ESSIG: Was the fact that they weren't recorded in the ECS log, did that 5 mean that the samples were not counted with the SAM 2? Could you shed any 6 light on that? 7 8 MULLEAVY: I can't. No. I am not sure right now where. Unless we had 9 begun to establish a counting system offsite and I'm not sure when a radia-10 tion management corporation began. 11 12 ESSIG: They were here on the 29th. 13 14 MULLEAVY: Then that's probably where they went and we eliminated the SAM 15 2. I know that we... 16 17 ESSIG: The NRC also ... 18 19 MULLEAVY: If that's the case then that's why we went to those and we 20 didn't count them so we would have sent them directly over to the NRC. I 21 know they were dropping them at the north gate and then taking them over to 22 the counting area. So that's probably why ... 23 24 25 895 319

1	ESSIG: The NRC was also counting some samples.
2	
3	MULLEAVY: Oh yeah. I guess they were here also. But I know that we did
4	not use the SAM 2 because of this Xenon.
5	
6	ESSIG: Had there been an instruction given to the teams to discontinue the
7	use of the SAM 2.
8	
9	MULLEAVY: Yes. There had been.
10	
11	ESSIG: After a certain point.
12	
13	MULLEAVY: After a certain point, but I can't remember when that was.
14	
15	ESSIG: Do you think that point might have been after you had had the
16	counting
17	capability?
18	
19	MULLEAVY: As soon as those counting capabilities came in we utilized those
20	because we realized that the SAM 2 was not giving us the result we wanted
21	to see.
22	
23	ESSIG: Okay. Two more questions. There was a sample or, I guess, a
24	measurement made, a dose rate measurement, made at an area called access
25	control. Is that a new plant? Location, or would that be at the entrance
	to the
1	895 320

## MULLEAVY: Access control?

ESSIG: That was the only location given. The reason I was asking was that there was a positive iodine measurement made there on the 30th and I was trying to determine whether or not it was inplant sample or an out of plant sample.

<u>MULLEAVY:</u> Well, the access control, the only place that I can think of were that access control would be, it would be at the HP control point. Some people use that term "access control," meaning access control point. We only had two at that particular time and that was Unit 1 and Unit 2's HP control points.

ESSIG: You said that it was probably inplant sample.

MULLEAVY: It was probably an inplant reading.

ESSIG: Okay.

MULLEAVY: What date was that?

ESSIG: It was on the 30th. It was on Friday.

24 MULLEAVY: I would assume that's either Unit 1 or Unit 2's HP control point.

895 321

ESSIG: There was a sample collected beginning at 0515. 1 2 MULLEAVY: It could have been at one of the control points. 3 4 ESSIG: Okay. One last question. The FSAR refers to, in Section 12.1.4.1, 5 refers to, and I'll quote the sentence, "Site monitors in the Unit 1 control 6 room have sufficient range to record an alarm activity at the site boundary." 7 That leads me to believe that there were or still are radiation measuring 8 devices of some sort on, at or near the site boundary which are recorded in 9 the control room and I'll show you the specific reference here that I was 10 reading from. It's that statement that I'm pointing to right there. Does 11 that ring a bell with you? Are you ... 12 13 MULLEAVY: No, it doesn't. The only monitor that we would have out there 14 at any, would be RML 7 which is our effluent monitor and ... 15 16 ESSIG: That would be a liquid effluent. 17 18 MULLEAVY: That's a liquid effluent monitor. No, we don't have installed 19 site monitors that alarm in the control room if that's on the site boundary. 20 We do not have them. 21 22 ESSIG: Had you ever had it ... 23 24 895 322 25

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1	MULLEAVY: No.
2	
3	ESSIG: Any time to your knowledge?
4	
5	MULLEAVY: No. Not since I've been here.
6	
7	ESSIG: Okay.
8	YUHAS: Tom, could you describe your facility organization in the sense of
9	who you report to and who that individual reports to?
11	
12	MULLEAVY: I report to Dick Dubiel, who is the Supervisor of Health Physics
13	and Chemistry, and he in turn reports to a Dave Limroth.
14	
15	YUHAS: What is Mr. Limroth's title?
16	
17	MULLEAVY: I was afraid you'd ask me that. He's an Admin, Supervisor of
18	Administrative I'd forgotten exactly what that actual title is, but he is an Administrative Supervisor.
19	
20	YUHAS: And to whom does Mr. Limroth report?
22	
23	MULLEAVY: I believe he reports directly to the Station Superintendent, who
24	is Mr. Miller.
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YUHAS: When did that change go into effect
MULLEAVY: Oh, about six months ago.
YUHAS: Are you familiar with the Technical Specification description of
your facility operation?
MULLEAVY: Am I familiar with it? Somewhat, not in detail, no.
YUHAS: Are you aware that that description does not include Mr. Limroth's
position as a subordinate to Mr. Miller, including Dubiel and Miller?
MULLEAVY: I am not aware of that, no.
YUHAS: I'd like to go over now, some basic Health Physics issues that
would have been in effect prior to the incidents that occurred on March 28.
First, would you please describe the retraining program for Health Physics
technicians?
MULLEAVY: We have right now, so many hours, and I believe its 40 hours per
year devoted to training of an individual tech. There is no specific
format other than HPR, I believe, 1690 which gives us somewhat of a guideline
for training of an HP tech. Cutside of that, there is no formal requirement
or formal program set up for an annual requalification of an HP rad chem
tech.

YUHAS: How is the effectiveness of this training program assessed?
MULLEAVY: There is no mechanism for a formal assessment of that training
program.
YUHAS: Who inputs to the training group documentation of training provided?
MULLEAVY: Pete Velez, an HP foreman.
YUHAS: Are you familiar with 24 hours of HP startup training that was
provided to all health physics technicians for Unit 2 startup during December
of 1978?
MULLEAVY: That was provided as a guideline to the techs. They were toured
through the unit, they were shown the radiation monitoring system, they
were shown chemistry sample points. That was not done in a 24 hour period
of time, however. That was an accumulation of time.
YUHAS: How was that time accounted for?
MULLEAVY: How is it accounted for? Pete Velez was keeping that particular
MULLEAVY: How is it accounted for? Pete Velez was keeping that particular time. And that should be documented on a training record, I believe, I
hope.
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073 525

YUHAS: The 24 hours is documented. However, he interviews with nearly all 1 technicians. They're at a loss to explain how more than 2 to 3 hours of 2 that 24 hours was actually spent in training. 3 4 MULLEAVY: Well, I can't answer what Pete did on that particular one but I 5 know that they were taken on tours, they were put in chemistry situations 6 for sampling points, and so forth, and they went into the Unit 2 to make 7 drawings for me and many of them went into the areas, looked over those, 8 made the drawings in preparation for the HP survey work. 91 10 YUHAS: What training is provided in the form of retraining for both your-11 self, Mr. Dubiel, and Mr. Limroth? 12 13 MULLEAVY: None. 14 15 YUHAS: You have not received any formal training in the last two years? 16 17 MULLEAVY: Oh various things that I have attended such as respiratory 18 protection. I spent a 3 day program in Florida going through a Los Alamos 19 training session for respiratory protection. I have also spent one week on 20 the Hewlett Packard, that's within the 5 years that I've been here. Hewlett 21 Packard programming on the 9830. 22 23 YUHAS: But there is no formal program that involves, for instance, health 24 physics aspects of startup for the reactor, unscheduled shutdown of the

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1	reactor, or various emergency procedures that might involve health physic
2	action, health physics section?
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4	MULLEAVY: That's correct. There is none. Nothing formal.
5	
6	YUHAS: Do you participate in the training of licensed operators in the
7	area of the health physics?
8	
9	MULLEAVY: I do, yes.
10	
11	YUHAS: Do you participate in the training of unlicensed operators, primarily
12	auxiliary operators or upgrade from B aux operator to A aux operator?
13	
14	MULLEAVY: That's a requalification and we also give a advanced HP course,
15	which I have participated in, yes.
16	
17	YUHAS: In the last class, the last 6 week class for auxiliary operator
18	upgrade, can you describe how the two weeks or 80 hours of health physics
19	training was accomplished? This would have been the classes that completed
20	about September of this year, of last year.
21	
22	MULLEAVY: We did a modified course on that particular group as an experi-
23	mental to see if it could be accomplished and that they passed the very
24	similar exam as the 80 hour course did. That was a modified HP advanced
25	course.
	895 327

YUHAS: How was that modified from the program described in the procedures? 1 21 MULLEAVY: We took study time from them and gave all classroom work, we did 3 spend time out in the field conducting surveys, which we did not do this 4 time, I took a lot of the time that we felt was wasted and condensed it 5 down. We took shielding calculations off the agenda because we didn't feel 6 that that was pertinent to the course, being an HP technician that they 7 would have to know shielding calculation other than inverse square and so 8 forth, utilized to reduce exposure. So this cut another day off of that 9 particular one, so we did modify it just to see whether it could be done. 10 11 YUHAS: In the test to that course, did you cover the requirements for 12 individuals entering the high radiation area? 13 14 MULLEAVY: Yes. 15 16 YUHAS: Basically, could you describe those requirements for us? 17 18 MULLEAVY: For a high radiation area greater than 100 millirem per hour. 19 whole body exposure. Those requirements are that an individual must first 20 of all have an RWP, he must by Tech Spec have, your Unit 1, have a high 21 range instrument with him, and would be wearing his personnel monitoring 22 devices. 23 24 895 328 25

YUHAS: Can you describe what training information you provided this group 1 of auxiliary operators relative to the appropriate action to take in the 2 event that their pocket dosimeter is offscale? 3 4 MULLEAVY: They report to Health Physics. As simple as that. 5 6 YUHAS: Were these auxiliary operators instructed to do just that? 7 8 MULLEAVY: Yes, indeed. They were. We do that in all training sessions. 9 10 YUHAS: So it is your opinion that any Metropolitan Edison employee who has 11 been around here for a few years and was for instance say an A operator 12 would know for instance that if his pocket dosimeter went offscale that he 13 should come out of the area and inform Health Physics? 14 15 MULLEAVY: Yes, indeed. 16 17 YUHAS: Would feel comfortable saying that every A operator and every 18 engineer that's been through the Health Physics general education training 19 program and every Health Physics technician would know that if he's in a 20 high radiation area and his meter failed to come out? 21 22 MULLEAVY: He should, indeed, because we show them how to read meters and 23 what to do in the event they do fail. 24 895 329 25

1 YUHAS: So you feel comfortable in saying that everyone has been instructed, 2 if they enter a high radiation area or if they have given permission to 3 enter a high radiation area and that meter goes offscale or fails downscale, 4 to come out of the area? 5 6 MULLEAVY: Yes, sir. 7 FOSTER: This is a good point to break. We're gonna change the tape. The 8 9 time is 6:28 p.m. 10 FOSTER: This is Foster. We're continuing with the interview of Mr. Mulleavy. 11 The time is 6:30 p.m. 12 13 YUHAS: Have the Health Physics technician been instructed in limitations 14 of for instance the teletector instrument? 15 16 MULLEAVY: Yes, they should be more than familiar with it because everyone 17 of them has performed calibration on them and they use them daily. 18 19 YUHAS: Do you feel that your health physics technicians are aware of the 20 energy response characteristics of the teletector GM tubes to low energy 21 gamma radiation? 22 23 MULLEAVY: They may not know that aspect. 24 25

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YUHAS: Why would you feel that they may not know that?

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MULLEAVY: To specifically go under the energy response of them I don't 3 believe that that has been covered with I say I don't believe it has been 4 covered with the older technicians. The newer ones in the newer training programs, yes.

YUHAS: While we're speaking of instruments, can you basically describe the 8 availability or the adequacy of your portable radiation monitoring instru-9 ments prior to the incident? 10

MULLEAVY: Very, yes, I can describe it. We had come out of an outage in 12 Unit 1, we had quite a lot of instruments down. I believe that the availa-13 bility of all types of instruments was there but our numbers were limited. 14 I can't give you numbers. But we were down in our availability of instru-15 ments, in number. 16

YUHAS: I've reviewed the calibration and instrument inventory sheets and as a result of my review as of the date of the instrument...date of the incident I indicate that you have about four teletectors operable, twelve that were either inoperable or out of calibration. My review indicates that you have two ... excuse me, you have five RO2s operable, eight not operable. E520s you had six operable and nine either inoperable or out of calibration. PNR4s you had none operable, you had two either inoperable or out of calibration. PIC-6s my review indicates you had four operable, 11

inoperable. Do you feel that its basically representative of the conditions on the 28th?

MULLEAVY: Very much so, yes.

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YUHAS: Is there some particular reason why more than half of your instruments were either inoperable or not calibrated?

MULLEAVY: Well, the reason that a lot of them were inoperable was that 9 we..as I stated before...we had just come out of a refueling in Unit 1. 10 There was a heavy usage of instruments and technicians were busy and so 11 forth. Those in not in calibration could have been I suppose, had we put 12 them down in the facility to go ahead and do that but I'm not sure exactly 13 what the relationship was of calibrated as inoperable and not able to be 14 used because they were not functionally properly. But the instruments 15 department we had contacted them repeatedly to repair them for us and they 16 were going to get to it as soon as they had the manpower available but it 17 just never seemed to take place. 18

20 YUHAS: How many....

MULLEAVY: We were thinking very seriously of going to an outside vendor if we got any lower in instruments and have it done outside.

895 332

DONALDSON: Tom, I wonder if just real briefly back to the emergency kits 1 that are stored in the north search facility. According to the inventories 2 that were conducted one just prior to the emergency and I believe it was 3 conducted on the 11th of the month indicated that one SAM 2 kit and one 4 PIC-6 were out of service. 5 6 MULLEAVY: That's correct. 7 8 DONALDSON: Was the PIC-6 rotated out and replaced as another instrument or 9 was it still out of service on the morning of the 28th? 10 11 MULLEAVY: I can't answer that. All I know is the SAM 2 was not operable 12 that morning and I knew it wasn't because we were waiting for a board to 13 come in for that and Len had that in his office awaiting that board. 14 15 DONALDSON: You don't have spares...you did not have instruments that you 16 could rotate in? 17 18 MULLEAVY: No, we did not at the time. We have, no. 19 20 YUHAS: To reiterate that whole kit was in Mr. Landry's office in the 21 morning? 22 23 MULLEAVY: Yes, it was. 24 895 333 25

YUHAS: How many zero to one R pencils were available approximately on the morning of the 28th, and where were they?

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MULLEAVY: The dosimetry again as instruments we were down in their numbers I can't answer how many there were that morning, I really don't know. I would assume we had a hundred, a hundred fifty available between the two units.

YUHAS: That morning, what sort of respiratory protective devices were 9 available on site. I'm thinking primarily in terms of the number of self-10 contained breathing apparatus, the number of full-face masks and type of 11 cartridges that were available for use with those masks. 12

MULLEAVY: We primarily stocked the Scott. We had those instruments or 14 those Scott airpacks that were on the wall for emergency use. Each unit has them specified HP1616. I can't remember whether its 22 or 24 per unit, but approximately those particular numbers. The ... each control point had approximately fifty face pieces that were available with the particulate canister. And that was the Scott particulate canister. There were some half-face respirators in Unit 1's Control Room and Unit ... plus two Scott airpacks up there in Unit 2, there were four Scott airpacks in that Control Room and we had two more in the HP Lab of Unit 1 Scott airpacks. I believe that's about the extent of it.

895 334

YUHAS: So you did not have any of the unapproved iodine removing canisters 1 available onsite on the morning of the 28th? 2 31 MULLEAVY: That's correct. 4 5 YUHAS: Did you have any respiratory protective devices which had been 6 outfitted with devices to aid in communication? 7 8 MULLEAVY: No. 9 10 YUHAS: Had that been discussed as a result of previous use of respiratory 11 protective devices? 12 13 MULLEAVY: Not really, we had spoken at one time I just more or less discussed 14 at one time that communications could be helpful sometime, some people 15 don't believe in them because they squeal back and forth and get in the way 16 rather than are an aid. We had not formally looked into possibly obtaining 17 that type of equipment. 18 19 YUHAS: When were these considerative questions brought about improving 20 communication with people in respirators? 21 22 MULLEAVY: Oh, there was one time when we had a fire in the...gosh, I can't 23 remember where that was... in the reactor building I believe there was some 24 point where individuals had to run into the reactor building ... Unit 1... and

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895 335

somebody said, yeah, would have been a good idea to have communications at that time. And then another person, no, I've used those and you couldn't talk anyway because they squeal back when you got close to somebody else. And this type of thing. But as far as formally ever discussing it, looking into the possibility, no, we hadn't discussed that. At least in our department now I don't know about the safety department. If they had we were never aware of that.

YUHAS: How to you disseminate information to the rad chem techs relative to the changes in the procedures or to procedure revisions or to issuances of new procedures?

MULLEAVY: Through the foreman in the lab, we do have that procedure changed by Delores, our secretary, who goes back to the lab and makes the charges to the manuals and if there is a change, she will put a note up on the bulletin board back there and that's how we communicate.

YUHAS: So you have no official mechanism for the individual to acknowledge that they have been informed of procedural change?

MULLEAVY: No, we don't because individuals at sometimes will refuse to sign a piece of paper stating that and I don't have a way of forcing them to do that.

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1	YUHAS: How do you appraise individuals of changes in the regulations
2	particular part 19 and part 20?
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4	MULLEAVY: If a change does come we will do that change the same way. We
5	will put out a memo from Dick Dubiel.
6	
7	YUHAS: Do you apprise technicians of changes in the technical specifi-
8	cations?
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10	MULLEAVY: No, that we have not done.
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12	YUHAS: Can you basically describe the procedure that deals with handling
13	or how to handle violations of health physics procedures?
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15	MULLEAVY: We have a HP violation notice that goesan individual a rad
16	chem tech has a capability of filling that particular one out and there is
17	a distribution list. The individual is spoken to and investigation is
18	made.
19	
20	YUHAS: Can you describe about how many of those you processed this year?
21	
22	MULLEAVY: Up to just recently probably two or three. Been very few.
23	YUHAS: Is that because there's a conserted effort for everyone to follow
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25	health physics procedures or is there another reason that you've processed so few.
	895 337
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	MULLEAVY: I would assume that a rad chem tech who is in a brotherhood finds
	it difficult to turn in "a brother" and this has been a hardship.
	YUHAS: Have there been any instances where individuals have turned in
	health physics violations sheets on representatives of management?
	MULLEAVY: Yes.
	YUHAS: Would you characterize the number of violations that deal with
	management representatives versus the number of health physics violations
	that deal with fellow members of the technician's union.
	MULLEAVY: I'm not quite sure you're saying do they put in the management
	ones more than they would theiryes indeed.
	VINAS. Do vourself your forenes on Mr. Dubiel - La statut
	YUHAS: Do yourself, your foreman, or Mr. Dubiel also write HP violation sheets?
	SHEECS:
	MULLEAVY: I can. I have not this year, no. I leave that to the technicians
	and generally if they come up and they will makesay something to me
	about another individual I will speak to him privately. That's of the
	bargaining unit.
	YUHAS: Do your foreman, yourself, or Mr. Dubiel conduct audits of compli-
	ance with health physics procedures and regulations?

MULLEAVY: We do look at it. We formally had a procedure that asked us to 1 do that. We did not ... We do not have that procedure right now. We do take 2 a look at the procedures. We do not probably do it as formally as we 3 should. But there is not a formal audit made. We do that .. excuse me...we 4 do have that through GPU and they come and audit us. The QC department 5 audits us so we felt that our own internal audit would be just a reiteration 6 of these. So we do have audits, yes. 7 8 YUHAS: Has there been any indication to you of reprisals by management 9 representatives as a result of being written up by representatives of the 10 health physics department? 11 12 MULLEAVY: To me a reprisal upon myself? 13 14 YUHAS: No, upon the individuals. 15 16 There has been scuttlebutt to that effect, yes. MULLEAVY: 17 18 YUHAS: Did you investigate those allegations? 19 20 MULLEAVY: Yes. 21 22 YUHAS: What were your findings? 23 24 895 339 25

1	MULLEAVY: They were denied.
2	YUHAS: They were denied meaning that the allegations then substantiated?
4	MULLEAVY: Yes.
6 7 8 9	YUHAS: Several individuals apparently received doses in excess of the NRC quarterly limit for whole body exposure during this incident, did you
10 11	MULLEAVY: I am aware of them, a formal review, no.
12	YUHAS: Are you aware that a formal review was conducted of those exposures?
14 15	MULLEAVY: Yes.
16 17	YUHAS: Do you know who conducted that?
18 19	MULLEAVY: I believe Mr. Dubeil did.
20 21 22	YUHAS: On the morning of the incident, when you were in the ECS, did you dispatch any individuals to conduct surveys of either the Unit 1 or of the
23 24	Unit 2 auxilliary buildings? 895 340
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ı	MULLEAVY: No, I did not. I believe that was done before I arrived.
2	YUHAS: Did you tell any individual to go through the Unit 1 auxiliary
4	building and make sure people had come out?
5	MULLEAVY: No.
7	YUHAS: Were you aware cognizant or directed individuals to prepare to take
9	a Unit 2 letdown sample that morning?
11	MULLEAVY: No not, the morning of the twenty-eighth?
12 13	YUHAS: That's right.
14 15	MULLEAVY: No.
16 17	YUHAS: Were you aware that a letdown sample was being recirced and being
18 19	taken while you were setting up the EC
20	MULLEAVY: I was not.
22	YUHAS: ECS center here that morning?
23 24	MULLEAVY: No sir.
25	895 341

YUHAS: When the dose rates began to go up in the ECS and the hand and foot monitors start going off and the RM14 started going off, did someone give you an indication why all those alarms were going off? MULLEAVY: No, no. I found that out afterwards. YUHAS: Did you make the decision to evacuate the ECS? MULLEAVY: Yes I did. YUHAS: What was the basis of that decision? MULLEAVY: A radiation level going up that I did not know where it came from, so we evacuated that particular area. YUHAS: Now we're talking about the same symptoms, in other words your decision to leave was based on the fact that the hand . . . . MULLEAVY: Was based on the radiation monitor. . . . YUHAS: Right, hand and foot counters going off. . . MULLEAVY: That's correct. 895 342 

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1	YUHAS: The RM14 there was going off		
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3	MULLEAVY: Yes.		
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5	YUHAS: Did you hear remote area monitors, for instance the RM3G or RM4G		
6	alarm?		
7			
8	MULLEAVY: Yes.		
9			
10	YUHAS: So you made your decision based on all these other indications		
11			
12	MULLEAVY: That's correct.		
13			
14	YUHAS: No one told you hey, that somebody next door is recircing a sample		
15	within twelve feet		
16			
17	MULLEAVY: No.		
18	VINAS: OF YOUR PROP		
19	YUHAS: Of your area.		
20	MULLEAVY: No.		
21	HULLAVI. NU.		
22	YUHAS: Were you aware that the FSAR states that the sample lines from Unit		
23	2 will be shielded or in shielded pipe chases?		
24			
25	895 343		

MULLEAVY: Yes.

YUHAS: Is that the way the plant's built?

MULLEAVY: In Unit 2 side, yes indeed. As they come through the model room they are shielded, when they approach over in Unit 2 side, they are not, . . . or Unit 1 side, excuse me, they are not.

YUHAS: So then you understand the FSR to mean only the point of which the sample lines are in Unit 2?

MULLEAVY: That's the way it was designed.

14 <u>YUHAS:</u> At what point did you releave, or were you releaved responsibilities in ECS?

MULLEAVY: At what point?

YUHAS: What point in time did you no longer consider your duties primarily directing offsite and out of plant onsite survey teams, what day, what time?

MULLEAVY: Oh, . . . that's a toughy. . . we went on shift, I believe that was on the thirtith. . . sometime.

895 344

1	YUHAS: So you were ECS for the full day which was probably more than
2	fourteen hours
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4	MULLEAVY: Yes, I was ECS
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6	YUHAS: On Wednesday.
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8	MULLEAVY: Wednesday, I finally probably left there early in the morning
9	the next day, the twenty-ninth.
10	
11	YUHAS: You slept a few hours, you come back in and you still assumed ECS
12	duties?
13	
14	MULLEAVY: Yes, I, I went right to Unit 1.
15	
16	YUHAS: OK.
17	
18	MULLEAVY: In the control room.
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20	YUHAS: And what time did you leave Thursday night, or was it Friday morning
21	when you left?
22	
23	MULLEAVY: I can't remember. I was a long time, but I can't remember. I
24	know that we stayed a good deal of time, I came in that afternoon I guess
25	or later on that morning and stayed until that evening and I believe

I went home and came back again at . . . I know somewhere around there we went into the twelve hour shifts, seven to seven, and I think that was on

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the thirtith, I was on the evening shift, I was on at seven at night till 3 seven in the morning. 4 5 YUHAS: That would mean you came on Friday the thirtith at seven at night ... 6 7 MULLEAVY: I think that was it. 8 9 YUHAS: And worked till seven in the morning. 10 11 YUHAS: I think that's probably consistent with what I . . . 12 13 MULLEAVY: Yes something like ... 14 15 YUHAS: The night of the twenty-ninth, you're the ECS director in Unit 1, 16 did George Kunder call you and tell you that Houser had received an exposure 17 in excess of three rem and that Houser was highly contaminated? 18 19 MULLEAVY: No. I don't recall that, the only time I knew about Houser was 20 later on when Ed Houser came to me and told me about his contamination 21

problem and that he was concerned and I then went to see him, I can't remember what day this was, but I know I was then working the seven to seven in Unit 2 control room or lab after that. I didn't know of his particular condition until that particular time, I got upset because the guy

895 346

seemed to be worried and I didn't like that because he was a good guy and, 1 so then I went and I got a hold of Dr. Brenamin and wanted Dr. Brenamin to 2 talk to him to explain the situation to him? 3 4 DONALDSON: Who is Dr. Brenamin? 5 6 MULLEAVY: Dr. Brenamin is a doctor with Radiation Management Corporation. 7 8 YUHAS: Are you sure that's not Dr. Linamin, spelled with an "L"? 9 10 MULLEAVY: Linamin, you're right, excuse me. You're correct, I'm sorry, 11 and it is Dr. Linamin, and . . . talked with him, I talked with Syd Porter 12 first and Syd did call him and then we made arrangements for him to meet 13 with the doctor and which seemed to help. 14 15 YUHAS: Are your health physics foremen instructed to report to you abnormal 16 levels of contamination or excessive exposures? 17 18/ MULLEAVY: Are they instructed to do that, no I wouldn't say they have 19 specific instructions in which to do that but we have always communicated 20 that way. 21 22 YUHAS: Did Valez inform you of Houser's contamination or of his own? 23 24 895 347 25

MULLEAVY: No, no I'm sorry he didn't, nor did anyone of the foremen of 1 which I understand afterwards that they all knew. See I was over in Unit 1 2 now, unrelated to the rest of the group. 3 4 YUHAS: Did a Mr. Pat Shannon come up to the Unit 1 ECS on the night of the 5 twenty-eighth after receiving excessive exposures and getting contaminated 6 and deconed himself and came up to the ECS center for a while until somebody 7 read his dosimeter out, called or dosimetry out and called back in, do you 8 remember that? 9 10 MULLEAVY: Pat Shannon. . . the name sounds familiar. . . 11 12 YUHAS: He's an auxiliary operator. 13 14 MULLEAVY: It seems to me I recall some incident like that, I'm not sure if 15 it was Pat Shannon or not but I do recall that, yes. 16 17 YUHAS: Did he speak to you of his contamination? 18 19 MULLEAVY: No. I knew of an exposure. I think it was Pat, yeah. 20 21 YUHAS: Can you basically describe how you would assess a skin dose say 22 resulting from 40 mrad/hr measured with an E520 closed window contact with 23 the skin. 24 895 348 25

MULLEA	: How I would assess that particular that particular dose
YUHAS:	How would you assess the dose, the skin dose from that sort of an
exposur	
MULLEAN	How I would do it is to called Radiation Management Corporation
and as	for their particular advice, that's how I would handle that.
YUHAS:	After
MULLEAV	I have that mechanism to call them.
familia	After you asked Dr. Roger Leniman to talk to Mr. Houser make himself with that case, did you get any feedback whatsoever that Mr. or Dr. Leniman assessed the skin dose to Mr. Houser?
	No, no that I didn't get back that he, I asked Ed afterwards,
you kno	how, how he was after he'd spoken with the doctor and so forth
and he	emed to be a little calmer, which I was hoping for and but as far
as the	tual condition and so forth of what the doctor felt, I didn't get
any fee	ack after that.
<u>YUHAS:</u> contami	id Valez make you aware that he had also had substantial levels of tion?
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MULLEAVY: No.

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YUHAS: The retraining program for health physics foremen, does it involve recognition of the dose commitment resulting from residual surface contamination on personnels body, a persons body?

MULLEAVY: It does, it does not.

YUHAS: Could you make a, a subjected value judgement as to the theoretical qualifications of your health physics foremen?

12 MULLEAVY: Theoretical qualifications of them? I would say judging from 13 other foremen that I have seen that their theoritical capabilities are 14 average in the field for the job that they have to perform, that is to 15 supervise technicians. We have assigned to the department the expertise to 16 make dose commitments, make dose evaluations and soforth, if not we have 17 the expertise behind us as far as consultants who we do have twenty-four 18 hour coverage on and that we can get a hold of them.

YUHAS: Who specifically by name are you referring to when you say within your department you have the expertise to evaluate those commitments?

MULLEAVY: Mr. Len Landry and Richard Dubeil.

895 350

YUHAS: What is the mechanism of informing these two individuals of unusual exposures or contamination or updates so they can use their expertise?

<u>MULLEAVY:</u> There is a procedure in our particular books on notification the Radiation Protection Supervisor, or the Supervisor, Radiation Protection Chemistry at different levels of contamination and that does exist we have all read it, they were in on the review of the procedure everyone should be aware of that mechanism.

YUHAS: In the first three days of this fiasco, it appeared that from my preliminary review that many of the health physics procedures were not followed, some for a good cause. In the course of training, have you discussed with your members of health physics or the rad protection department, what procedures must be followed even in emergencies?

MULLEAVY: No. No, we have never selected. We said if we have this we will follow this, this and this. No.

YUHAS: In the course of your emergency plant training in your general health physics training, have you discussed how to deal with inplant life threatening exposures?

MULLEAVY: How to deal with them?

895 351

YUHAS: The health physics aspects of coping with dose rates that peg teletectors?

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MULLEAVY: We have spoken to the groups on what an individual could have as 4 far as life threatening or he was gonna save a life, he could take this, if 5 an individual was going to save a piece of equipment, we could allow this 6 much on a voluntary basis and so forth. We've done that of medical emergen-7 cies. But what to do in the event that a teletectors pegs? We'd told them 8 what to do in the event anything pegs. And they know time distance and 9 shielding, and they know what and how to get out of areas, and I would hope 10 that they would know what to do in the event that that happened. The only 11 time that becomes difficult is if you are in an environment where wherever 12 you would move you would find that. . . situation, and the biggest thing 13 would be not to panic, but you'd have to move away from it. 14

YUHAS: You alleged or you just stated that we told them what to do for the protection of vital equipment. Who decides, who did you tell them decides when they're protecting vital equipment?

MULLEAVY: The shift supervisor would be the one to discuss this with if equipment has to be taken care of; say that we're not in an emergency, but something had to be saved, that would be, have to come from the shift supervisor in the event that Dick or myself were not there, you then in turn would get that from the shift supervisor.

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YUHAS: In the emergency organization that was in place on the twentyeighth, the twenty-ninth and thirtith, there were many operations which required individuals to enter very high dose rate areas, ok, who specifically evaluated where those entries were necessary for the protection of vital equipment?

MULLEAVY: I would be high pressed to say whether they were totally evaluated or not, I think it was due to what is going on, what do we have to do, all of these situations, if there could be an individual responsible or able to take care of that ALARA program that would be terrific, I don't think under those circumstances it could be done.

YUHAS: In your emergency training has it been in the past that any time an 13 entry is made that would result in a single large acute exposure that either Mr. Dubiel or yourself is a party to that decision?

MULLEAVY: Yes sir.

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YUHAS: Did that occur in the sense, were you aware of entries, . .

MULLEAVY: No.

YUHAS: In the auxiliary buildings?

MULLEAVY: No.

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YUHAS: Can you describe the allocations for forming manpower during the first couple days, who made the decisions to put them where?

MULLEAVY: That. . . I can't answer that, uh, the very first day when we 6 set up the ECS I did that, allocation of those people. As it progressed 7 later on the decision to put Pete Velez and I see Bob McCann out at the, 8 out at the washdown area, I did not make that decision to put those indivi-9 duals out there I don't believe, unless the last time I remember Bob McCann 10 was under my direction staying at the ECS keeping individuals out. To go 11 to the washdown area, I know that Pete Velez went to the North Gate under 12 my direction to get the readings there, now he may have gone to the washdown 13 area because he saw a need there. 14

16 YUHAS: Was one foreman assigned a specific wall of responsibility for coordinating entries in terms of these high dose rate areas?

MULLEAVY: No.

YUHAS: During a drill has one foreman been assigned responsibility for insuring control over entry in these high rate areas?

MULLEAVY: No sir.

895 354

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D	ONALDSON: Had anyone ever been assigned that responsibility?
MI	ULLEAVY: No, no.
D	ONALDSON: Do you feel that, let me back up, did you ever run a drill
	sing the alternate ECS?
	ULLEAVY: Yes, yes, which helped because that gave us a path and a mechanism
to	o go. We did that last year.
	DNALDSON: Well how were entries into the auxiliary building controlled
du	uring that drill? Normally you would be at the access point.
ML	JLLEAVY: That's correct.
00	NALDSON. At the FOC
	DNALDSON: At the ECS you would have visual control over it but when you
pu	Il out of that area in a drill how did you control
MU	JLLEAVY: We came back to the control tower in Unit 1 and stopped access
th	ere outside of the ECS with the door closed, that's exactly what we did
	nis time.
DO	NALDSON: Essentially what your saying is that because the organization
wa	is implemented the way the plan had it set out during the drill then
	cople would not even enter there unless the right person told them to.

<u>MULLEAVY:</u> That's correct. And everybody had been accounted for there and we just took the whole group out and it was foolish at the time we did it last year I thought because it made everybody run from one unit to the other but most helpful when we had to really do it.

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YUHAS: Whats the general criteria for an individual wearing an extremity monitor.

9 <u>MULLEAVY:</u> When an individual there is a rule of thumb somebody came up with a long time ago if an individual is going to get ten times his whole body exposure we would put an extremity on however; if an individual is going to be handling something that is going to be of a consequence such as a seal injection filter or something of this nature we would generally put a wrist badge on the individual.

YUHAS: How did you evaluate the wrist badge in terms of dose to the fingers when someone is picking something up.

MULLEAVY: That is not evaluated. We do not have ring badges here. We did at one time but we felt that the wrist badge was close enough and I would have to be almost convinced that it isn't. I'm not sure whether that isn't a good way of evaluating.

YUHAS: Are you aware that several individuals at at least four different points during the incident handled the reactor coolant samples directly.

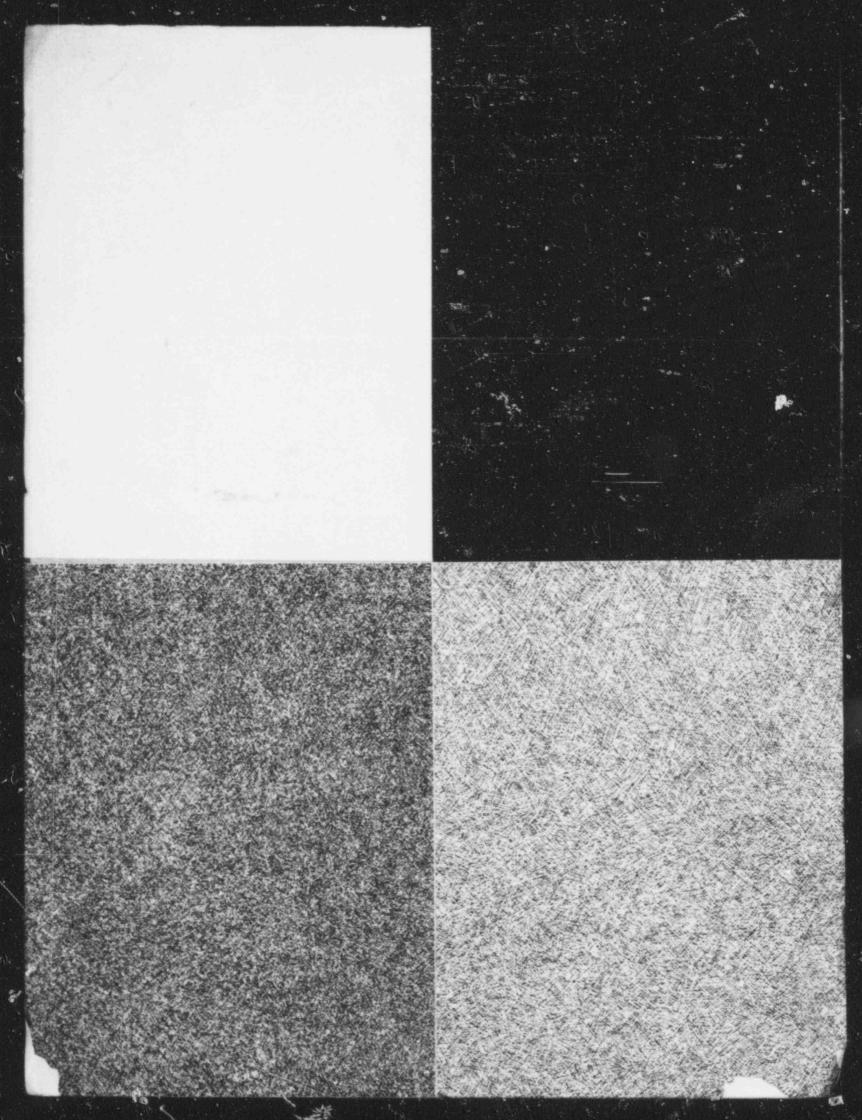
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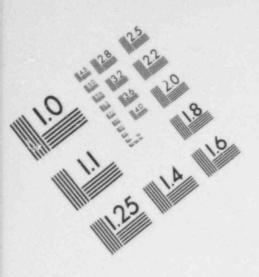
MU	LLEAVY: Yes.
YU	HAS: You are sir aware that none of these individuals had wrist badge or
an	y kind of extremity monitoring.
	LLEAVY: Are you sure they didn't have extremities? I understood they
di	d.
VII	
YU	HAS: Please enlighten us if you think there was someone
MU	LLEAVY: I'm speaking of Mr. Houser.
110	LELAVI. I'm speaking of Mr. Houser.
00	NALDSON: I believe the only kind of extremity monitoring they had was a
	simeter taken taped to their forearm and I believe Mr. Velez had one and
	dropped and went off scale. I don't know whether Mr. Houser did or not.
YUI	HAS: Not that I know of.
MUI	LLEAVY: I apologize, I stand corrected. I understood that he did.
YU	HAS: In the part of the HP training is that covered on an annual basis.
Whe	en to wear extremity monitoring. How to evaluate.
MUL	LEAVY: To auxiliary operators and this type of thing.

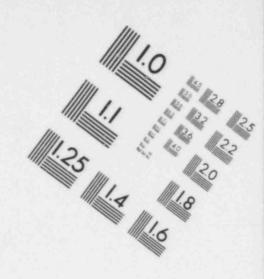
YUHAS: To anyone that has an HP on their badge. 1 2 MULLEAVY: To our own people. No it probably is not. We mentioned the 3 fact that we do use them, we have them but the HP department will tell them 4 when to use them.it will be on the radiation work permit. 5 6 YUHAS: Are you familiar with RMA 12? 7 8 MULLEAVY: Yes. 9 10 YUHAS: How long is RMA 12 been out of operation? 11 12 MULLEAVY: Its been in and out of operation I would say almost for the last 13 year. 14 15 YUHAS: Do you know whether or not it was in operation the immediately 16 before the incident. 17 18 MULLEAVY: I do not specifically know. I know that it had been a concern 19 of mine during the last couple of weeks of the outage. A motor had been 20 placed in it. The mechanical maintenance department said that it was operable. 21 We turned it on it was making a very bad noise they said they had done 22 everything they could. This got to be a game we were playing and we did 23 turn it on, now whether it was on that particular day I don't know that. 24 25

YUHAS: Do you generally or do you always follow the malfunction report procedure as far as when something breaks and pulling out the paper work and sending it in to be logged in the control room and etc. MULLEAVY: We fill out a work request to have it repaired yes. YUHAS: The records indicate that that instrument has been out of commission since 4/8/78. MULLEAVY: Okay YUHAS: Is there a reason why you should doubt that documentation. MULLEAVY: No, none at all. I said for approximately a year and thats about it. YUHAS: When you were at the ECS in Unit 1 and the air activity start going up, did you personally look at the control tower ventilation monitor. MULLEAVY: I did not. No YUHAS: Did you direct that one of your technicians. MULLEAVY: No now wait a minute. When I was in the ECS? 895 359

YUHAS: We're talking when your in the Unit 1 control room as an alternate ECS and the air activities were going up you were talking about putting people on masks in Unit 1, okay, inthe Control Room, did you go over and look at the control room ventilation monitor. MULLEAVY: I did not because I had my own air sampler running and we were doing our own air samples. YUHAS: Can you describe how you were counting that air sample? MULLEAVY: We were counting them on a SAM2 back in the, no we weren't. We were counting them on a Ludlum I believe then a SAM2 and we were seeing particulate activity going up. YUHAS: But did you tell either your techs or your foreman to go over and look at the installed instrumentation for the control room air. MULLEAVY: No sir, I did not. DONALDSON: Let me back up here for a second. I just. You say you were counting those on a Sam-2 in the control room. MULLEAVY: Now I may be wrong about that. 895 360 



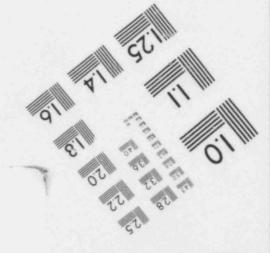


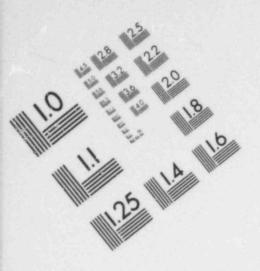


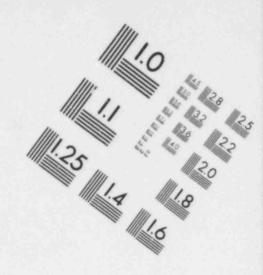
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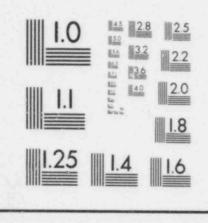






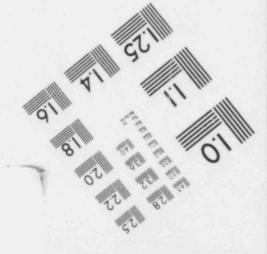


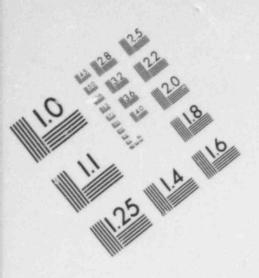
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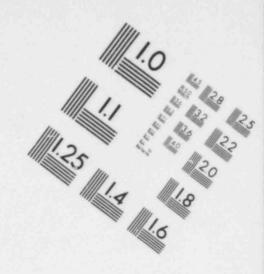


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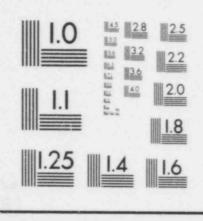






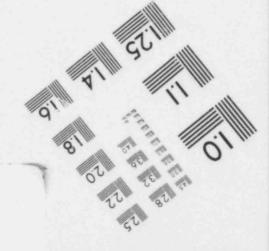


## IMAGE EVALUATION TEST TARGET (MT-3)



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	DONALDSON: Well I was just wondering we only had four and the teams were
	out with three of them and one of those broke down.
	MULLEAVY: I know, I guess I think it was a Ludlum and we doing only parti- culate.
	DONALDSON: Okay. Go ahead.
	MULLEAVY: Thank you very much.
	YUHAS: Can you describe what channels or what information can be gained from the control room installed air monitor.
	MULLEAVY: We would be able to see the activity in the building in the room.
	YUHAS: Can you be more specific as to the type of activity you could see.
	MULLEAVY: Particulate gas and iodine.
	<u>YUHAS:</u> Okay. You said you were counting samples with Ludlum. Did someone determine the halflife of that.
and the second se	MULLEAVY: Yes. \$96 001

YUHAS: What did they find. MULLEAVY: We found about an 18/19 minute halflife with our particular sample and we decayed that many times and took many samples before we decided to go out of respirators. I did also contact Unit 2. They were experiencing the same difficulty and they went out of respirators before we did. I wasn't quite sure. So I wanted some more decay time to determine that we did have a short lived halflife. YUHAS: Why didn't someone look at the iodine channel? MULLEAVY: I can't answer that. I don't know. I really don't know. YUHAS: Do you know if it was in the alarm or the alert? MULLEAVY: I do not. YUHAS: Are you aware of an individual on the 29th who got 3.1 rem of exposure but was revised downward unbenounced to a fade factor. Do you know something about that? MULLEAVY: If thats the one we have already discussed this and I believe that was up in the Unit 2 control room. 896 002 

YUHAS: We aren't talking about Tolinko. 1 2 MULLEAVY: We are not talking about Tolinko. All right fine then I don't 3 know about that one. 4 5 YUHAS: Our records indicate that some person, unbenounced to us, apparently 6 received a 3.1 rem on the initial TLD readout and that an evaluation was 7 performed by the licensee unbenounced what part of the licensee did this 8 and we have lost track. 9 10 MULLEAV/: No sir, I don't. What date was that? 11 12 YUHAS: 29th. 13 14 MULLEAVY: 29th. TLDs were being done over at the Observation Center at 15 that particular point and I don't know who was in charge at that date. 16 17 YUHAS: Can you describe to me what breathing zone air samples means? 18 19 MULLEAVY: The breathing zone is an area in which an individual thats his 20 breath air or breathing zone area. The air sampling device is a lapel air 21 sampler which fits on the individual. He carries it with him wherever he 22 walks around. In an area whether he needs a respirator or not is not 23 necessary I guess its the area in which the individual is breathing and its 24 detected by a lapel air sampler. 25 896 003

YUHAS: Have there been many entries into the Unit 2 containment at power in which operations personnel justified the entry on the basis of looking for leaks?

MULLEAVY: Yes.

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YUHAS: Can you describe what sort of air sample was performed for that type of entry and what sort of respiratory protective devices, if any, those individuals might have worn.

<u>MULLEAVY:</u> Well, air samples are generally taken every evening off of the monitor that monitors the air in the reactor building. We have an entry form that is mac, out before the individuals go in if it indicates that an individual must wear a respirator it could be the particulate respirator or generally here they wear the Scott. We wear Scott respirators for that evolution whether it was or was not indicate I don't know what instance we are tall g about but thats what we would do.

YUHAS: For Unit 2 containment then you are saying you would draw samples from HPR 227.

MULLEAVY: Thats correct.

YUHAS: Where is the suction point for that sample?

!	MULLEAVY: Generally in the dome.
1	(UHAS: That suction point is a three quarter inch stainless steel line
	located about two thirds up the top of the dome. Is that correct.
1	MULLEAVY: Thats correct.
1	(UHAS: Can you estimate to me the number of feet of vertical piping followed
	by bends before it ever gets to the monitor in the auxiliary building.
M	MULLEAVY: 200 feet perhaps.
1	(UHAS: 200 feet.
	MULLEAVY: I guess.
Y	(UHAS: Could you now describe for me how that sample would bear any corro-
	ation to an operator going in in search of and finding a leak?
	aron to an operator going in in search of and finding a leak?
M	NULLEAVY: That's looking at reactor building air, I suppose that I'm, I
f	eel confident that that does tell us what the reactor building is holding
	or air activity.
Y	UHAS: So you feel that that sampler does give you an indication of what
t	he workers breathing zone is as for instance if he was down in the basement
	evel of the, of the containment standing over the sump? $896,005$
	070 000

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2 3 4	YUHAS: I don't think I have any other questions at this time.
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5	ESSIG: I had one, one other one, you referred to the Ludlum, could you,
6	could you elaborate a little bit? What type of Ludlum
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7	MULLEAVY: The Ludlum is, is a portable scaler beta/gamma unit, that we
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11	ESSIG: Were these utilized mostly in plant during the, during the period
12	of time that we're talking about?
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14	MULLEAVY: Yes. That's our counting device for particulates, particulate
15	samples.
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17	FOSTER: Ok, thank you Tom, we're gonna conclude this interview at 7:11 p.m.
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